Neural precursor and stem cells

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Abstract of EP1529838

A cell population comprising at least 5% neural stem cells, the stem cells being characterized by an expression of ASCT2 or KIAA0152, is new. - Independent claims are also included for the following: - (1) a method for isolating the cell population cited above; - (2) a medicament comprising the above cell population; and - (3) a monoclonal antiboc directed against ASCT2. - ACTIVITY - Neuroprotective; Nootropic; Antiparkinsonian; Cerebroprotective; Vasotropic; No biological data given. - MECHANISM OF ACTION - Cell Therapy.

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- (54) Neurale Vorläufer- und Stammzellen
- (57) Zellpopulation, dadurch gekennzeichnet, dass mindestens 5% der Zellen neurale Vorläuferzellen sind, die wenigstens einen der in Liste A oder Liste B aufgeführten Marker aufweisen.

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Beschreibung

[0001] Die vorliegende Erfindung betrifft Zellpopulationen von neuralen Vorläuferzellen bzw. neuralen Stammzellen sowie Verfahren zur Isolierung entsprechender Zellen.

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[0002] Der Ausgangspunkt für die Generierung der über tausend verschiedenen neuronalen und glialen Zelltypen des Nervensystems von Vertebraten sind multipotente, neurale Stammzellen des embryonalen Neuroepitheliums (Williams, B. P., Read, J. & Price, J. (1991): The generation of neurons and oligodendrocytes from a common precursor cell. *Neuron* 7(4), 685-93), (Davis, A. A. & Temple, S. (1994): A self-renewing multipotential stem cell in embryonic rat cerebral cortex. *Nature* 372(6503), 263-6), (Weiss, S., Dunne, C., Hewson, J., Wohl, C., Wheatley, M., Peterson, A. C. & Reynolds, B. A. (1996): Multipotent CNS stem cells are present in the adult mammalian spinal cord and ventricular neuroaxis. *J Neurosci* 16(23), 7599-609).

[0003] In den vergangenen Jahren wurde durch verschiedene Arbeitsgruppen gezeigt, dass solche sich selbst erneuernden, multipotenten Vorläuferzellen nicht nur während der Entwicklung, sondern auch im adulten Gehirn zu finden sind (Gage, F. H. (2000): Mammalian neural stem cells. *Science* 287(5457), 1433-8). Vor allem um die lateralen Ventrikel des Vorderhirns findet die Bildung von neuralen Vorläuferzellen lebenslang statt. Diese wandern hauptsächlich, wenn auch nicht exklusiv, in den Bulbus olfaktorius, um dort in GABA-erge Interneurone zu differenzieren.

[0004] Über die genaue Lokalisation der multipotenten Stammzellen, die dieser sekundären Neurogenese zugrunde liegen, wird derzeit noch spekuliert: Johansson et al. beschrieben ependymale Zellen entlang des Lumen der adulten, ventrikulären Zone mit den Eigenschaften multipotenter Stammzellen (Johansson, C. B., Svensson, M., Wallstedt, L., Janson, A. M. & Frisen, J. (1999b): Neural stem cells in the adult human brain, Exp. Cell Res 253(2), 733-6), während Doetsch et al. Astrocyten der subventrikulären Zone als multipotente Stammzellen identifizierten (Doetsch, F., Caille, I., Lim, D. A., Garcia-Verdugo, J. M. & Alvarez-Buylla, A. (1999): Subventricular zone astrocytes are neural stem cells in the adult mammalian brain. Cell 97(6), 703-16). Eine absolut eindeutige Identifizierung dieser adulten Stammzellen in vivo ist jedoch bis heute, hauptsächlich mangels geeigneter Marker, nicht gelungen.

[0005] Neben ihrer Bedeutung im olfaktorischen System ist das therapeutische Potential der adulten Stammzellen von besonderem Interesse. Aufgrund ihrer Multipotenz weisen neurale Stammzellen bemerkenswerte Formbarkeit auf und könnten daher durch Zusatz von verschiedenen Faktoren zur Erzeugung verschiedener Neuronentypen eingesetzt werden. Die anschließende Transplantation der so entwickelten spezialisierten Zellen könnte zur Behandlung von neurologischen Krankheiten Alzheimer, Parkinson, Folgen von

Schädel-Hirn-Traumata und Schlaganfall beitragen. Voraussetzung dafür ist die Charakterisierung der verschiedenen, neuralen Differenzierungsstufen sowie die Identifizierung der Faktoren, die die Differenzierungsprogramme der Stammzellen steuern. Gegenüber den embryonalen Stammzellen haben die adulten den Vorteil, dass sie erstens keine abstoßende Immunreaktion auslösen würden, weil sie dem Körper des Patienten entstammen, folglich ihre Transplantation ohne Immunsuppression erfolgen könnte, und zweitens ihre Gewinnung ethisch unbedenklich ist.

[0006] Die Erforschung der Eigenschaften neuraler Stammzellen und embronaler Stammzellen des Menschen ist aus ethischen Aspekten praktisch nicht oder nur sehr eingeschränkt möglich. Daher wurden alle explorativen Arbeiten ausgehend von Mäusen und Mauszellen durchgeführt. Wie bereits beschrieben war die Isolierung von neuralen Stammzellen bisher nicht möglich, da dieser Zelltyp nicht eindeutig charakterisiert war und keine geeigneten Marker zur Identifizierung und Anreicherung zur Verfügung standen.

[0007] Aufgabe der vorliegenden Erfindung war es daher Verfahren zu entwickeln, die eine Isolation von neuralen Vorläuferzellen und neuralen Stammzellen erlauben und entsprechende Zellpopulation, enthaltend diese Zelle bereitzustellen.

[0008] Erfindungsgemäß wird die Aufgabe gelöst durch die Identifizierung von Markern, die entsprechende Zellen aufweisen.

[0009] Marker ist ein Gen, das mit Hilfe der Serial Analysis of Genexpression (SAGE) in entsprechenden Zellen gefunden wird.

[0010] Methodisch beruht SAGE auf der Isolierung von 14 bp großen DNA Fragmenten (Tags), die jeweils charakteristisch für eine mRNA-Spezies sind. Die Tags. repräsentativ für alle in der zu untersuchenden Zelle vorliegenden mRNA Moleküle, werden zu langen Polymeren verbunden, die im letzten Schritt der Methode sequenziert werden. Die Frequenz, mit der ein Tag sequenziert wird, ist direkt proportional zur Kopienzahl der mRNA-Moleküle im untersuchten Ausgangsmaterial (Velculescu, V. E., Zhang, L., Vogelstein, B. & Kinzler, K. W. (1995): Serial analysis of gene expression. Science 270(5235), 484-7). Durch die computerunterstützte Auswertung der Sequenzdaten entsteht ein digitales Expressionsprofil, das beliebig oft und ohne zusätzliche Laborarbeit mit Expressionsprofilen anderer Gewebe verglichen werden kann (Meta-Analyse).

[0011] Den so identifizierten Gene sind eindeutigen Nummern zugeordnet, die beispielsweise als SAGE-map von National Center for Biotechnology Information (NCBI) bereitgestellt werden (www.ncbi.nlm.nin.gov/SAGE).

[0012] Gegenstand der Erfindung sind zum einen Zellpopulationen, bei denen mindestens 5% der Zellen neurale Vorläuferzellen sind, die wenigstens einen der in Liste A oder Liste B aufgeführten Marker aufweisen. [0013] Bevorzugt weisen entsprechende neurale Vor-

läuferzellen wenigstens zwei, drei, vier oder fünf der in Liste A oder B aufgeführten Marker auf.

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[0014] In bevorzugten Ausführungsformen weisen entsprechende neurale Vorläuferzellen keinen der in Liste C aufgeführten Marker auf.

[0015] Bevorzugt ist der Gehalt an neuralen Vorläuferzellen in der Zellpopulation hoch, d.h. mindestens 10%, bevorzugt mindestens 25%, noch mehr bevorzugt mehr als 50% und am meisten bevorzugt über 90%.

[0016] Entsprechende neurale Vorläuferzellen sind vorzugsweise aus Hirngewebe erhältlich.

[0017] In einer Ausführungsform handelt es sich dabei um eine murine Zellpopulation.

[0018] Gegenstand der Erfindung ist auch ein Verfahren zur Isolierung einer entsprechenden Zellpopulation mit folgenden Schritten:

entweder

- Entnahme einer Probe aus dem Hirn
- Isolieren der neuralen Vorläuferzellen unter Ver- 20 wendung der angegebenen Marker

oder

- Differenzierung von embryonalen Stammzellen zu neuralen Vorläuferzellen.
- Isolieren der neuralen Vorläuferzellen unter Verwendung der angegebenen Marker

oder

- Trans-Differenzierung von adulten, nicht neuralen Stammzellen zu neuralen Vorläuferzellen,
- Isolieren der neuralen Vorläuferzellen unter Verwendung der angegebenen Marker

oder

- Differenzierung von adulten, neuralen Stammzellen zu neuralen Vorläuferzellen,
- Isolieren der neuralen Vorläuferzellen unter Verwendung der angegebenen Marker

oder

- Differenzierung von immortalisierten Zellen zu neuralen Vorläuferzellen,
- Isolieren der neuralen Vorläuferzellen unter Verwendung der angegebenen Marker,

[0019] "Unter Verwendung der angegebenen Marker" bedeutet, dass die Zellen isoliert werden, die positiv für mindestens einen der Marker aus der Liste A und B sind, wobei mehrere positive Marker und die Abwesenheit von Markern der Liste C bevorzugt werden. Die Isolierung kann beispielsweise durch FACS Analyse erfol-

gen. Die durch die Verfahren erhältlichen Zellen sind ebenfalls Gegenstand der Erfindung.

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[0020] Ein weiterer Gegenstand der Erfindung ist die Verwendung mindestens eines Markers ausgewählt aus der Liete Ander Liete Baru Identifizierung eder Lee

aus der Liste A oder Liste B zu Identifizierung oder Isolierung von neuralen Vorläuferzellen.

[0021] Gegenstand ist weiterhin ein Antikörper gegen einen Marker aus der Liste A, B oder C, ein Diagnostikmittel enthaltend mindestens einen, bevorzugt zwei oder mehr Substanzen zur Erkennung der Marker der Liste A, B oder C sowie ein Arzneimittel enthaltend die erfindungsgemäße Zellpopulation.

[0022] Solche Arzneimittel könnten wie oben dargestellt zur Behandlung von neurologischen Krankheiten wie Alzheimer, Parkinson, Folgen von Schädelhirntraumata oder Schlaganfall eingesetzt werden.

[0023] Ein weiterer Gegenstand ist eine Zellpopulation, bei der mindestens 5% der Zellen neurale Stammzellen sind, die wenigstens einen der in Liste D oder Liste E aufgeführten Marker aufweisen.

[0024] Vorzugsweise weisen entsprechende neurale Stammzellen mindestens zwei, bevorzugt mindestens drei, mindestens vier und noch mehr bevorzugt mindestens fünf der in Liste D oder Liste E aufgeführten Marker auf.

[0025] In besonders bevorzugten Ausführungsformen weisen entsprechende neurale Stammzellen keinen der in Liste A oder Liste C aufgeführten Marker auf. [0026] Der Gehalt an neuralen Stammzellen in der Zellpopulation ist möglichst hoch, bevorzugt mindestes 10%, mehr bevorzugt mindestes 25%, mindestens 50%, und am meisten bevorzugt mindestens 90%.

[0027] Entsprechende Zellpopulation sind aus Hirngewebe erhältlich. In einer Ausführungsform handelt es sich um eine murine Zellpopulation.

[0028] Gegenstand ist weiterhin ein Verfahren zur Isolierung der Zellpopulation. Dies ist erhältlich entweder durch

- Entnahme einer Probe aus dem Hirn
 - Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

45 oder

- Differenzierung von embryonalen Stammzellen zu neuralen Stammzellen.
- Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

oder

- Trans-Differenzierung von adulten, nicht neuralen Stammzellen zu neuralen Stammzellen,
 - Isolieren der neuralen Stammzellen unter Verwen-

dung der angegebenen Marker

oder

- De-Differenzierung von adulten, neuralen Vorläuferzellen zu neuralen Stammzellen,
- Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

oder

- Differenzierung von immortalisierten Zellen zu neuralen Stammzellen,
- Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker.

[0029] Die Isolierung erfolgt wie oben bei den neuralen Vorläuferzellen angegeben. Auch die auf diesem Wege erhältlichen neuralen Stammzellen sind Gegenstand der Erfindung.

[0030] Gegenstand der Erfindung ist weiterhin ein Antikörper gegen einen Marker aus der Liste D, E, ein Diagnostikmittel enthaltend mindestens einen, bevorzugt zwei oder mehr Substanzen zur Erkennung der Marker der Liste D, E, A oder C sowie ein Arzneimittel enthaltend die erfindungsgemäße Zellpopulation.

[0031] Solche Arzneimitteln können wie dargestellt zur Behandlung von neuronalen Krankheiten wie Alzheimer, Parkinson, Folgen von Schädelhirntraumata oder Schlaganfall eingesetzt werden.

Beispiele

A. Isolierung von embryonaler Stammzellen

[0032] Murine embryonale Stammzellen proliferieren klonal in vitro und sind aus diesem Grunde in großer Menge und hochreiner Form isolierbar. Nach dem Stand der Technik werden diese in Anwesenheit von LIF auf primären embryonalen Fibroblasten gehalten und regelmäßig durch die Generierung von hochgradig keimbahnkompetenten chimären Mäusen auf ihre Qualität überprüft. Unter normalen Kulturbedingungen beträgt das Verhältnis ES-Zellen zu kontaminierenden Fibroblasten etwa 200:1. Um auch diese minoritäre Komponente zu eliminieren, wurden die ES-Zellen vor der RNA-Päparation für zwei Passagen (vier Tage) auf gelatinisierten Kulturplatten bei erhöhter LIF-Konzentration gehalten. Dies ermöglicht eine Reduktion der kontaminierenden Fibroblasten auf etwa 0,01% der Gesamtpopulation.

B. Isolierung von neuronalen Vorläuferzellen aus dem adulten Mausgehirn.

[0033] In der subventrikulären Zone des adulten Vor-

derhirns von Vertebraten werden permanent große Mengen von neuralen Vorläuferzellen gebildet (wahrscheinlich < 50000 Zellen/ Tag). Diese Zellen benutzen einen präzise definierten Migrationsweg und eine spezielle Form der Translokation (*Chain migration*) um in den Bulbus olfaktorius zu gelangen. Im Bulbus olfaktorius angelangt differenzieren diese Vorläuferzellen normalerweise in inhibitorische (GABA-erge) Interneurone. Unter bestimmten experimentellen Bedingungen wurde

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10 ihre Differenzierung in Oligodendrozyten und Astrozyten gezeigt.

[0034] Neurale Vorläufer, die einen Differenzierungszustand zwischen einer neuralen Stammzelle und einem terminal differenzierten Neuron repräsentieren, exprimieren spezifisch eine Form des neuralen Zelladhäsionsmoleküls NCAM, die eine spezielle post-translationelle Modifikation aufweist. Diese Modifikation besteht aus der Glykosylierung des Proteins mit a-2,8 verknüpfter Polysialylsäure (PSA). Ein spezifischer Antikörper gegen dieses Glykoepitop (Chazal et al., 2000) erlaubte die hochreine Isolierung der Zielpopulation aus dissozierten Vorderhirngewebe durch FACS (Fluorescence Activated Cell Sorting).

⁵ C. Molekulargenetische Analyse

[0035] Embryonale Stammzellen und neuronale Vorläuferzellen wurden in einem genomweiten Screen mit der Methode SAGE (Serial Analysis of Gene Expression) analysiert.

[0036] Die Genexpressionsprofile der beiden Zell-Populationen wurden unter Anwendung bioinformatischer Verfahrensweisen mit Maus-Hirn-SAGE-Datenbanken verglichen, um molekulare Marker zu identifizieren, die charakteristisch für embryonale Stammzellen und neuronale Vorläuferzellen sind.

[0037] Mit Hilfe der Microarray technologie wurde die Expression der Gene bestätigt.

[0038] Durch in situ-Hybridisierung in Maushirn und an embryonalen Stammzellen wurde die zelluläre Lokalisation einiger der identifizierten Gene bestimmt. Diese Ergebnisse belegen, dass spezifische Markergene identifiziert werden konnten.

5 Liste A: Positivmarker neurale Vorläuferzellen (1.) und Negativmarker 2 neurale Stammzellen;

ES-Zellen -; PSA-NCAM +; Adult brain -

[0039]

	Mm.8884	nuclear factor of kappa light chain gene
		enhancer in B-cells inhibitor, alpha
	Mm.8180	lymphocyte antigen 6 complex, locus A
5	Mm.6238	SRY-box containing gene 11
	Mm.517	(Manual) Manic fringe protein, putative
		secreted glycosyltransferase, notch
		modulator

7

Mm. 44249	Mm.4919 Mm.4727	DNA segment, human D4S114 seizure related gene 6		Liste B: Positivmarker neurale Vorläuferzellen (2.);			
Mm. 42948 Peroxiredoxin 2		-		ES-Zellen -/+; PSA-NCAM +; Adult brain -			
Mm. 422	Mm.44490	RIKEN cDNA 6330415M09 gene					
Mm.3494	Mm.42948	•	5	[0040]			
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Mm.16596 B-cell translocation gene 1, anti-proliferative 20 Mm.5153 neurotensin receptor 2 Purkinje cell protein 4 Mm.148973 RIKEN cDNA 3010025E17 gene heterogeneous nuclear ribonucleoprotein K Mm.142872 hymosin, beta 4, X chromosome inbosomal protein L23 protein phosphatase 1, regulatory (inhibitor) subunit 14B protein phosphatase 1, regulatory (inhibitor) subunit 14B eukaryotic translation initiation factor 4A1 Liste C: Negativmarker 1 neurale Stammzellen und Negativmarker neurale Vorläuferzellen; ES-Zellen -; PSA-NCAM -; Adult brain + [20041] Mm.98 proteasome (prosome, macropain) subunit, beta type 6 Mm.9745 lactate dehydrogenase 2, B chain creatine kinase, mitochondrial 1, ubiquitous porter (St212ab) mRNA, complete cds Mm.8883 Mm.8891 kinesin family member C2 Mm.8893 Mus musculus strain ILS K-Cl cotransporter (St212ab) mRNA, complete cds Mm.8868 Mm.8808 RIKEN cDNA 0610011B04 gene microtrubule-associated protein 6 Mm.898 CD 81 antigen microtrubule-associated protein 6 Mm.898 ESTs wm.4867 Mm.48707 Mm.48707 Mm.4857 calcium/calmodulin-dependent protein kinase II, beta kinase II, beta kinase in list kinase II, beta kinase II, beta kinase in list kinase II, beta kinase II,	Mm.16767	heterogeneous nuclear ribonucleopro-		Mm.52	RIKEN cDNA 1810033A19 gene
mm.148973 RIKEN cDNA 3010025E17 gene Mm.142872 heterogeneous nuclear ribonucleoprotein K Mm.142729 tuymosin, beta 4, X chromosome ribosomal protein L23 25 (alpha 2) Mm.1407 protein phosphatase 1, regulatory (inhibitor) subunit 14B Mm. 12858 eukaryotic translation initiation factor 4A1 Liste C: Negativmarker 1 neurale Stammzellen und Negativmarker neurale Vorläuferzellen; ES-Zellen -; PSA-NCAM -; Adult brain + Mm.98 proteasome (prosome, macropain) subunit, beta type 6 Mm.9745 Iactate dehydrogenase 2, B chain creatine kinase, mitochondrial 1, ubiquitous Mm.891 Kinesin family member C2 Mm.8927 Mm.8933 Mus musculus strain ILS K-Cl cotransporter (Sic12a5) mRNA, complete cds Mm.86654 Mm.866654 Mm.8				Mm.5195	complexin 1
Mm.148973 RIKEN cDNA 3010025E17 gene heterogeneous nuclear ribonucleoprotein k Mm.492872 (alpha 2) glutamate receptor, ionotropic, AMPA2 (alpha 1) synaptosomal-associated protein, 91 kDa calcium/calmodulin-dependent protein kinase II, beta kinesin heavy chain member 1A (Manual) probably in far 3'-UTR of complexivar-ker neurale Vorläuferzellen; Mm.4657 Mm.4657 RIKEN cDNA 4833409J18 gene amyloid beta (A4) precursor protein-binding, family A, member 2 kinesin-associated protein 3 RIKEN cDNA 4833409J18 gene amyloid beta (A4) precursor protein-binding, family A, member 2 kinesin-associated protein 3 RIKEN cDNA 1200016B17 gene ATPase, Na+/K+ transporting, beta 1 polypeptide Mm.4550 M	Mm.16596				neurotensin receptor 2
Mm.142872 heterogeneous nuclear ribonucleoprotein K Mm.4921 glutamate receptor, ionotropic, AMPA2 (alpha 2) Mm.142729 Mm.140380 Mm.40380 Mm.40380 Mm.4020 Mm.4920 (alpha 2) glutamate receptor, ionotropic, AMPA1 (alpha 2) Mm.140380 protein phosphatase 1, regulatory (inhibitor) subunit 14B Mm.4870 Mm.4870 synaptosomal-associated protein, 91 kDa Mm. 12858 eukaryotic translation initiation factor 4A1 Mm.4867 Mm.4867 Mm.4857 (alpha 1) Mm.4870 (alpha 1) Mm.4870 (alpha 1) Mm.4870 (alpha 1) Mm.4870 (alpha 2) Mm.4870 (alpha 1) Mm.4870 (alpha 2) Mm.4870 (alpha 2) Mm.4870 (alpha 2) Mm.4870 (alpha 1) Mm.4870 (alpha 2)			20	Mm.5023	- ,
tein K Mm.147229 Mm.140380 Mm.					
Mm.142729 thymosin, beta 4, X chromosome vibosomal protein L23 Mm. 4930 glutamate receptor, ionotropic, AMPA1 (alpha 1) Mm.140380 protein phosphatase 1, regulatory (inhibitor) subunit 14B Mm. 4870 synaptosomal-associated protein, 91 kDa Mm. 12858 eukaryotic translation initiation factor 4A1 Mm. 4867 calcium/calmodulin-dependent kinase II, beta with the sin + amount of the sinase II, beta kinase II, beta II, beta kinase II, beta kinase II, beta kinase II, beta II, beta kinase II, beta kinase II, beta II, beta kinase II, beta II, be	Mm.142872	•		Mm.4921	
Mm.140380 ribosomal protein L23 protein phosphatase 1, regulatory (inhibitor) subunit 14B wh.12858 eukaryotic translation initiation factor 4A1	NA 4 40700				• •
Mm.140protein phosphatase 1, regulatory (inhibitor) subunit 14BMm. 4870synaptosomal-associated protein, 91 kDaMm. 12858eukaryotic translation initiation factor 4A14Mm.4857calcium/calmodulin-dependent protein kinase II, betaListe C: Negativmarker 1 neurale Stammzellen und Negativmarker neurale Vorläuferzellen;30Mm.4762kinesin heavy chain member 1AES-Zellen -; PSA-NCAM -; Adult brain +35Mm.46764RIIKEN cDNA 4833409J18 geneES-Zellen -j PSA-NCAM -; Adult brain +35Mm.4657RIIKEN cDNA 1200016817 geneMm.98proteasome (prosome, macropain) subunit, beta type 6Mm.4651kinesin associated protein 3Mm.9745lactate dehydrogenase 2, B chain creatine kinase, mitochondrial 1, ubiquitous40Mm.4550ATPase, Na+/K+ transporting, beta 1 polypeptideMm.8883Mm.88833Mm.44355Mm.44357NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 9Mm.8888RIKEN cDNA 0610011B04 gene microtubule-associated protein 6 microtubule-associated protein 6 microtubule-associated protein 6 microtubule-associated protein 6 etsits expressed gene 261Mm.44107Mm.44107Mm.44107Mm.44107Mm.44107Mm.44107Mm.44107Mm.44107Mm.44107Mus musculus, ATPase, Na+K+ transporting, alpha 3 subunit, clone MGC: 27631 IMAGE:4506376, mRNA, complete cdMm.729aldolase 3, C isoformMm.4308Mm.43786Mm.43786Mm.43786Mm.43786Mm.43786Mm.43786Mm.7729aldolase 3, C isoformMm.4360Mm.43786Mm.43786Mm.43786Mm.43786Mm.43786Mm.43786 <td></td> <td>· ·</td> <td>05</td> <td>Mm.4920</td> <td></td>		· ·	05	Mm.4920	
bitor) subunit 14B mm. 12858		•	25	NA 4070	• • •
Mm. 12858 eukaryotic translation initiation factor 4A1 Liste C: Negativmarker 1 neurale Stammzellen und Negativmarker neurale Vorläuferzellen; ES-Zellen -; PSA-NCAM -; Adult brain + [10041]	WIIII. 140			Mm.4870	• •
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Liste C: Negativmarker 1 neurale Stammzellen und Negativmarker neurale Vorläuferzellen; ES-Zellen -; PSA-NCAM -; Adult brain + [0041]	12000			WITH.4657	,
Liste C: Negativmarker 1 neurale Stammzellen und Negativmarker neurale Vorläuferzellen; ES-Zellen -; PSA-NCAM -; Adult brain + [Ou41]			30	Mm 4762	•
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ES-Zellen -; PSA-NCAM -; Adult brain + [0041]	_	,		Mm.46764	
God41	ES-Zellen -;	PSA-NCAM -; Adult brain +		Mm.4657	
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Mm.970creatine kinase, mitochondrial 1, ubiquitousMm.4537NADH dehydrogenase (ubiquinone) 1Mm.891kinesin family member C2beta subcomplex, 9Mm.88833Mus musculus strain ILS K-Cl cotransporter (Slc12a5) mRNA, complete cdsMm.44355RIKEN cDNA 6430514L14 geneMm.87027BM88 antigenkDaMm.8688RIKEN cDNA 0610011B04 geneMm.44244open reading frame 12Mm.86654microtubule-associated protein 6Mm.44107ESTsMm.848testis expressed gene 261Mm.44101Mus musculus, ATPase, Na+K+ transporting, alpha 3 subunit, clone MGC:Mm.80123ESTs, Weakly similar to simple repeat sequence-containing transcript27631 IMAGE:4506376, mRNA, complete cdsMm.7729aldolase 3, C isoformMm.4383myc box dependent interacting protein 1Mm.7420tubulin, beta 4Mm.43786cytochrome c oxidase, subunit VIIcMm.7363beta-spectrin 355Mm.43749RIKEN cDNA 3100001N19 geneMm.726basiginMm.43721small nuclear ribonucleoprotein NMm.7089hippocalcin		•			
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Mm.848 testis expressed gene 261					•
Mm.806CD 81 antigen50porting, alpha 3 subunit, clone MGC:Mm.80123ESTs, Weakly similar to simple repeat sequence-containing transcript27631 IMAGE:4506376, mRNA, completed to cdsMm.7729aldolase 3, C isoformMm.4383myc box dependent interacting protein 1Mm.7420tubulin, beta 4Mm.43786cytochrome c oxidase, subunit VIIcMm.7363beta-spectrin 355Mm.43749RIKEN cDNA 3100001N19 geneMm.726basiginMm.43721small nuclear ribonucleoprotein NMm.7089necdinMm.43587hippocalcin		·			
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Mm.7420tubulin, beta 4Mm.43786cytochrome c oxidase, subunit VIIcMm.7363beta-spectrin 355Mm.43749RIKEN cDNA 3100001N19 geneMm.726basiginMm.43721small nuclear ribonucleoprotein NMm.7089necdinMm.43587hippocalcin					·
Mm.7420tubulin, beta 4Mm.43786cytochrome c oxidase, subunit VIIcMm.7363beta-spectrin 355Mm.43749RIKEN cDNA 3100001N19 geneMm.726basiginMm.43721small nuclear ribonucleoprotein NMm.7089necdinMm.43587hippocalcin	Mm.7729	aldolase 3, C isoform		Mm.4383	myc box dependent interacting protein 1
Mm.726 basigin Mm.43721 small nuclear ribonucleoprotein N Mm.7089 necdin Mm.43587 hippocalcin	Mm.7420			Mm.43786	cytochrome c oxidase, subunit VIIc
Mm.7089 necdin Mm.43587 hippocalcin		•	55	Mm.43749	•
······································		•			•
mm.bb/ giutathione S-transferase, mu 5 Mm.43415 cytochrome c oxidase, subunit VI a, po-					• •
	MM.66/	giutatnione S-transferase, mu 5		Mm.43415	cytochrome c oxidase, subunit VI a, po-

EP 1 5	529	838	A1
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	11 EP 1 5		838 A1	12
	lypeptide 1		Mm.3974	ubiquitin specific protease 4 (proto-onco-
Mm.4339	laminin, alpha 5			gene)
Mm.43330	RIKEN cDNA 0610025G13 gene		Mm.39548	expressed sequence Al839779
Mm.43278	olfactomedin 1		Mm.3951	thymus cell antigen 1, theta
Mm.43278	olfactomedin 1	5	Mm.3915	myelin-associated oligodendrocytic ba-
Mm.4296	synovial sarcoma translocation, Chromo-			sic protein
	some 18		Mm.39040	myelin and lymphocyte protein, T-cell dif-
Mm.42949	RIKEN cDNA 1110012005 gene			ferentiation protein
Mm.42948	peroxiredoxin 2		Mm.38994	RIKEN cDNA 2600001N01 gene
Mm.42829	selenoprotein W, muscle 1	10	Mm.38993	calsyntenin 1
Mm.4266	integral membrane protein 2B		Mm.38551	calcium binding protein 1
Mm,4266	integral membrane protein 2B		Mm.38469	amyloid beta (A4) precursor protein-bin-
Mm.4263	cystatin C			ding, family B, member 1
Mm.425	histidine triad nucleotide binding protein		Mm.38438	RIKEN cDNA 1200009K17 gene
Mm.42255	ATPase, Ca++ transporting, cardiac	15	Mm.38421	(Manual assignment) ATPase, Na+K+
	muscle, slow twitch 2			transporting, alpha polypeptide
Mm.41926	NADH dehydrogenase (ubiquinone) 1 al-		Mm.38421	(Manual assignment) ATPase, Na+K+
	pha subcomplex, 4		101111.00-12-1	transporting, alpha polypeptide
Mm.41925	RIKEN cDNA 1810034B16 gene		Mm.3840	flotillin 2
Mm.41918	RIKEN cDNA 1110063G11 gene	20	Mm.38248	sialyltransferase 9 (CMP-NeuAc:lacto-
Mm.41911	cytochrome P450, 46 (cholesterol 24-hy-		141111.00240	sylceramide alpha-2,3-sialyltransferase)
	droxylase)		Mm.38036	ESTs, Moderately similar to
Mm.41893	RIKEN cDNA 6330408G06 gene		141111.00000	NX1A_MOUSE_2
Mm.41791	glycoprotein m6b		Mm.38036	ESTs, Moderately similar to
Mm.41752	expressed sequence AI847934	25	141111.00000	NX1A_MOUSE_2
Mm,41735	RIKEN cDNA 2300004C15 gene		Mm.37462	ESTs, Weakly similar to CA11 RAT COL-
Mm.41719	RIKEN cDNA 2610507A21 gene		14111.07402	LAGEN ALPHA 1(I) CHAIN
Mm,41711	Mus musculus, clone IMAGE:3499845,		Mm.37214	transferrin
	mRNA, partial cds		Mm.36275	DNA segment, Chr 11, Brigham & Wo-
Mm.41694	ESTs	30		men's Genetics 0517 expressed
Mm.41692	ESTs, Weakly similar to F59F4.2.p		Mm.3624	guanylate kinase 1
Mm.41642	regulator of G-protein signaling 4		Mm.35837	RIKEN cDNA 2510006D16 gene
Mm.41630	RIKEN cDNA 0710001E10 gene		Mm.35837	RIKEN cDNA 2510006D16 gene
Mm.41604	ESTs, Weakly similar to VAV3_MOUSE		Mm.3544	calcium channel, voltage-dependent, be-
	VAV-3 PROTEIN	35		ta 3 subunit
Mm.41603	expressed sequence AI891706		Mm.35439	secreted acidic cysteine rich glycoprotein
Mm.41603	expressed sequence Al891706		Mm.35270	Ly6/neurotoxin 1
Mm.41602	RIKEN cDNA 3110050O07 gene		Mm.3479	ATPase, H+ transporting, lysosomal
Mm.41602	RIKEN cDNA 3110050O07 gene			21kDa, V0 subunit B
Mm.4137	chromogranin A	40	Mm.34695	actin related protein 2/3 complex, subunit
Mm.41354	ESTs			1A (41 kDa)
Mm.41277	RIKEN cDNA 1110020M21 gene		Mm.34246	calmodulin 1
Mm.41248	ESTs		Mm.3363	prosaposin
Mm.41190	RIKEN cDNA 1700112L09 gene		Mm.3360	tyrosine 3-monooxygenase/tryptophan
Mm.40863	expressed sequence AW049870	45		5-monooxygenase activation protein, ze-
Mm.40738	RIKEN cDNA 2900072M03 gene			ta polypeptide
Mm.40621	ESTs, Moderately similar to		Mm.33117	ESTs
	Y552_HUMAN HYPOTHETICAL PRO-		Mm.3308	tyrosine 3-monooxygenase/tryptophan
	TEIN KIAA0552			5-monooxygenase activation protein, eta
Mm.40472	expressed sequence Al835002	50		polypeptide
Mm.40443	RIKEN cDNA 4930488B01 gene		Mm.3292	glutamate receptor, ionotropic, NMDA1
Mm.40124	phosphodiesterase 10A			(zeta 1)
Mm.40059	ESTs, Weakly similar to SP62 MOUSE		Mm.3229	ribosomal protein L26
	SPLICEOSOME ASSOCIATED PROTE-		Mm.32191	gamma-aminobutyric acid (GABA-B) re-
	IN 62	55		ceptor, 1
Mm.39857	RIKEN cDNA 2900074L19 gene		Mm.31395	carboxypeptidase E
Mm.39803	expressed sequence Al841080		Mm.3123	comichon-like (Drosophila)
Mm.39752	RIKEN cDNA 2900041A09 gene		Mm.31025	RIKEN cDNA 2310015K15 gene

Mm.30412	RIKEN cDNA 5430400P17 gene		Mm.29230	RIKEN cDNA 1500017E18 gene
Mm.30355	(Manual) KIF5A Neuronal Kinesin heavy		Mm.29227	RIKEN cDNA 2300002D11 gene
	chain		Mm.29205	bruno-like 4, RNA binding protein (Droso-
Mm.30266	hemoglobin, beta adult major chain			phila)
Mm.30266	hemoglobin, beta adult major chain	5	Mm.29205	bruno-like 4, RNA binding protein (Droso-
Mm.30206	ATPase, H+ transporting, lysosomal			phila)
	34kD, V1 subunit D		Mm.2918	megakaryocyte-associated tyrosine ki-
Mm.30156	protease, serine, 11 (Igf binding)			nase
Mm.30155	ATPase, H+ transporting, lysosomal		Mm.29141	RIKEN cDNA 0710008N11 gene
	16kD, V0 subunit C	10	Mm.29124	phosphatidic acid phosphatase type 2B
Mm.30150	RIKEN cDNA 1010001M12 gene		Mm.29075	(Manual) Reticulon 1 protein, major inter-
Mm.30126	membrane interacting protein of RGS16			nal tag
Mm.30085	aldo-keto reductase family 1, member A4		Mm.29027	SPARC-like 1 (mast9, hevin)
M 00070	(aldehyde reductase)		Mm.29027	SPARC-like 1 (mast9, hevin)
Mm.30072	cytochrome c oxidase subunit VIIa poly-	15	Mm.2902	protein tyrosine phosphatase, receptor-
Mm 20050	peptide 2-like			type, N
Mm.30059	myristoylated alanine rich protein kinase		Mm.28955	RIKEN cDNA 4930570C03 gene
Mm 20076	C substrate		Mm.28650	RAB6, member RAS oncogene family
Mm.29976 Mm.29965	septin 5	20	Mm.28650	RAB6, member RAS oncogene family
Mm.29947	RIKEN cDNA 2410104119 gene serine/threonine kinase 11	20	Mm.28643	vesicle-associated membrane protein 2
Mm.29939	RIKEN cDNA 1010001N11 gene		Mm.28561	protein kinase C, zeta
Mm.29937	(Manual assignment) polymorphism of		Mm.28518 Mm.28357	type I transmembrane protein Fn14
141111.23337	Mm.29937 ESTs, Weakly similar to pre-		WITH.28357	microtubule-associated protein 1 light chain 3
	dicted using Genefinder	25	Mm.2815	
Mm.29921	RAS protein-specific guanine nucleotide-	23	Mm.28107	RIKEN cDNA 1110021H02 gene
141111.20021	releasing factor 1		WIII1.20107	ectonucleotide pyrophosphatase/phosphodiesterase 2
Mm.2992	(Manual assignment) MBP myelin basic		Mm.28058	NADH dehydrogenase (ubiquinone) 1
	protein		WIII1.20030	beta subcomplex 5
Mm.29870	integral membrane protein 3	30	Mm.27886	RIKEN cDNA 2410011G03 gene
Mm.29867	NADH dehydrogenase (ubiquinone) 1 al-			Time to bring 24 room doo gene
	pha subcomplex 2		Mm.27608	Mus musculus, Similar to chromosome
Mm.29857	(Manual) Neurogranin			9 open reading frame 16, clone MGC:
Mm.29852	Mus musculus, clone IMAGE:5102170,			19388 IMAGE:2812475, mRNA, com-
	mRNA, partial cds	35		plete cds
Mm.29846	Mus musculus, Similar to NDRG family,		Mm.2755	calbindin 2
	member 4, clone MGC:7067 IMAGE:		Mm.27499	RIKEN cDNA 2010004E11 gene
	3156802, mRNA, complete cds		Mm.27407	RecQ protein-like
Mm.29842	NADH dehydrogenase flavoprotein 1		Mm.27256	discs, large homolog 4 (Drosophila)
Mm.29823	microsomal glutathione S-transferase 3	40	Mm.2720	mitogen activated protein kinase 8 in-
Mm.29807	ubiquitin carboxy-terminal hydrolase L1			teracting protein
Mm.29807	ubiquitin carboxy-terminal hydrolase L1		Mm.27114	RIKEN cDNA 0610043B10 gene
Mm.29771	ATPase, H+ transporting, lysosomal		Mm.27087	RIKEN cDNA 2010012C24 gene
	70kD, V1 subunit A, isoform 1		Mm.27005	visinin-like 1
Mm.29717	3-monooxgenase/tryptophan 5-monoox-	45	Mm.26633	PH domain containing protein in retina 1
	genase activation protein, gamma poly-		Mm.26633	PH domain containing protein in retina 1
	peptide		Mm.26550	phosphofructokinase, muscle
Mm.29711	adrenergic receptor kinase, beta 1		Mm.2645	eukaryotic translation elongation factor
Mm.297	actin, beta, cytoplasmic			1 alpha 2
Mm.29633	RIKEN cDNA 1810008021 gene	50	Mm.2635	pyruvate kinase 3
Mm.29600	Mus musculus, clone IMAGE:3964267,		Mm.2619	cholecystokinin
Mm 2049	mRNA		Mm.25849	RIKEN cDNA 2010003014 gene
Mm.2948 Mm.29477	H2-K region expressed gene 2		Mm.25738	RIKEN cDNA 2900002P20 gene
Mm.29477	SCAN domain-containing 1	55	Mm.25228	ring finger protein 11
Mm.29362	RIKEN cDNA 1810011001 gene expressed sequence Al414999	55	Mm.25203 Mm.2496	NCK-associated protein 1 internexin neuronal intermediate fila-
Mm.29344			WIIII.Z430	wedene neuronal intermediate tila.
	tumor differentially expressed 1, like			ment protein, alpha
Mm.29330			Mm.24482	

15

Mm.2446	synaptotagmin 4			pha o
Mm.24376	Mus musculus mRNA for calsyntenin-3		Mm.20964	guanine nucleotide binding protein, al-
141111.24070	(Cs3 gene)		141111.20304	pha o
Mm.2411	Ras-GTPase-activating protein (GAP		Mm.2082	apolipoprotein D
101111.2411	<120>) SH3-domain binding protein 2	5	Mm.206218	Mus musculus, Similar to hypothetical
Mm.24092	N-ethylmaleimide sensitive fusion pro-	•	WIII1.2002 10	protein FLJ22237, clone MGC:27683
141111.24032	tein			IMAGE:4913322, mRNA, complete cds
Mm.24092	N-ethylmaleimide sensitive fusion pro-		Mm.2060	RIKEN cDNA 2900010105 gene
141111.24002	tein		Mm.20472	vertebrate homolog of C. elegans Lin-7
Mm.2400	glutathione peroxidase 4	10	14111.20472	type 2
Mm.2397	synaptophysin		Mm.203939	expressed sequence Al256814
Mm.23826	phosphotyrosyl phosphatase activator		Mm.203924	expressed sequence AW259572
Mm.2381	amyloid beta (A4) precursor-like protein		Mm.203921	expressed sequence AI850305
	1		Mm.202728	expressed sequence Al447901
Mm.2338	glutamine synthetase	15	Mm.202696	expressed sequence AA409221
Mm.2338	glutamine synthetase		Mm.201729	expressed sequence Al426007
Mm.2326	macrophage migration inhibitory factor		Mm.2011	glutathione S-transferase, mu 1
Mm.2319	Scgn10 like-protein		Mm.200858	RIKEN cDNA 2410129E14 gene
Mm.23023	RIKEN cDNA 1500009C09 gene		Mm.200843	synuclein, beta
Mm.23002	RIKEN cDNA 5330410G16 gene	20	Mm.200817	expressed sequence AW124717
Mm.22699	selenoprotein P, plasma, 1		Mm.200817	expressed sequence AW124717
Mm.22637	RIKEN cDNA 0910001L24 gene		Mm.200806	(Manual) no clear assignment, probably
Mm.22597	RIKEN cDNA 2310042E05 gene			non-coding (but spliced) RNA gene
Mm.22473	Rab acceptor 1 (prenylated)		Mm.200511	expressed sequence Ai115024
Mm.22149	succinate dehydrogenase complex,	25	Mm.199903	expressed sequence Al850290
	subunit A, flavoprotein (Fp)		Mm.199652	expressed sequence Al838505
Mm.2214	septin 4		Mm.198588	expressed sequence Al851970
Mm.220966	reticulon 4		Mm.19834	RIKEN cDNA 0610033L03 gene
Mm.220898	calmodulin 3		Mm.197523	brain acyl-CoA hydrolase
Mm.220885	neurochondrin	30	Mm.196614	eukaryotic translation elongation factor
Mm.2206	NADH dehydrogenase (ubiquinone) fla-			1 alpha 1
	voprotein 2		Mm.196611	synapsin I
Mm.219776	RIKEN cDNA 1110001E17 gene		Mm.196607	eukaryotic translation initiation factor 5A
Mm.218848	RIKEN cDNA 3010002G01 gene		Mm.196605	hexokinase 1
Mm.218764	guanine nucleotide binding protein 13,	35	Mm.196578	mitochondrial carrier homolog 1
	gamma		Mm.196344	lusterin
Mm.218611	receptor (calcitonin) activity modifying		Mm.196239	RIKEN cDNA 4922501H04 gene
	protein 2		Mm.195869	ATPase, H+ transporting, lysosomal
Mm.21743	malate dehydrogenase, mitochondrial			31kDa, V1 subunit E
Mm.216438	Mus musculus, clone IMAGE:5068657,	40	Mm.1956	neurofilament, light polypeptide
	mRNA, partial cds		Mm.19370	ATP synthase, H+ transporting, mi-
Mm.216240	Mus musculus, clone IMAGE:3594799,			tochondrial F1F0 complex, subunit e
	mRNA		Mm.193539	H1 histone family, member 2
Mm.21485	RIKEN cDNA 2610102M01 gene		Mm.192991	Mus musculus, Similar to metallot-
Mm.214549	Mus musculus, Similar to vesicle-asso-	45		hionein 1, clone MGC:27821 IMAGE:
	ciated calmodulin-binding protein, clone			3483861, mRNA, complete cds
	MGC:28873 IMAGE:4527857, mRNA,		Mm.19133	amyloid beta (A4) precursor-like protein
	complete cds			2
Mm.2133	centaurin, gamma 3		Mm.19047	expressed sequence Al425998
Mm.212672	S100 protein, beta polypeptide, neural	50	Mm.182912	growth hormone inducible transmem-
Mm.212516	RIKEN cDNA 2900002L20 gene			brane protein
Mm.21251	deleted in polyposis 1		Mm.18218	ganglioside-induced differentiation-as-
Mm.21162	genes associated with retinoid-IFN-in-			sociated-protein 1
N 0400	duced mortality 19		Mm.181894	RIKEN cDNA 2900092E17 gene
Mm.2108	transthyretin	55	Mm.181721	RIKEN cDNA 2610041P16 gene
Mm.21071	ADP-ribosylation-like 2		Mm.180182	cytochrome c oxidase, subunit Vb
Mm.21069 Mm.20964	RIKEN cDNA 0610007A03 gene		Mm.1776	ferritin heavy chain
141111.20304	guanine nucleotide binding protein, al-		Mm.177272	brain protein 17

17	FD	4	529	838	A 1
17	EF	•	323	ಯ	ΑI

Mm.177117	Mus musculus, clone MGC:31632		Mm.115124	brain protein 14
	IMAGE:4511454, mRNA, complete cds		Mm.114810	expressed sequence AW060990
Mm.176927	RIKEN cDNA 2610301115 gene		Mm.1147	Mus musculus calmodulin III (Calm3)
Mm.17484	synuclein, alpha			mRNA, 3' untranslated region
Mm.16831	creatine kinase, brain	5	Mm.10727	ATPase, H+ transporting, lysosomal
Mm.16769	RIKEN cDNA 5031406P05 gene			56/58kD, V1 subunit B, isoform 2
Mm.16767	heterogeneous nuclear ribonucleopro- tein A2/B1		Mm.103709	potassium inwardly-rectifying channel, subfamily J, member 10
Mm.16763	aldolase 1, A isoform		Mm.103605	DnaJ (Hsp40) homolog, subfamily B,
Mm.16228	solute carrier family 25 (mitochondrial	10		member 10
	carrier; adenine nucleotide transloca- tor), member 4		Mm.102278	secretory carrier membrane protein 5
Mm.16080	••		Mm.102244	expressed sequence R74975
Mm.158871	dynamin RIKEN cDNA 2410003L22 gene		Mm.101476	(Manual assignment) BNPI, VGLUT-1,
Mm.157929	_	15		mouse homolog of putative vesicular
	ESTs, Weakly similar to PBAS MOUSE PROBASIN PRECURSOR	13		glutamate transporter, Na+/Phosphate cotransporter
Mm.157859	ESTs		Mm.100980	calneuron 1
Mm.157648	RIKEN cDNA 5730403B10 gene		Mm.1008	prostaglandin D2 synthase (21 kDa,
Mm.15711	cyclic nucleotide phosphodiesterase 1			brain)
Mm.156959	beta-spectrin 4	20	Mm.1008	(Manual) Prostaglandin H2 D-Isomera-
Mm.15571	amyloid beta (A4) precursor protein			se (PGD2 SYNTHASE) (PGDS2)
Mm.15512	potassium voltage-gated channel, sha-			(PGDS) member of lipocalin family
	ker-related subfamily, beta member 2			
Mm.154651	purine rich element binding protein B		Liste D: Posit	ivmarker neurale Stammzellen (1.);
Mm.153758	RIKEN cDNA 0610040H15 gene	25		•
Mm.15125	stromal cell derived factor receptor 1		ES-Zellen +; I	PSA-NCAM - ; Adult brain -
Mm.14798	ribosomal protein S13			
Mm.142511	expressed sequence Al173355		[0042]	
Mm.142187	RIKEN cDNA 2610009E16 gene			
	· ·			
Mm.142140	neurofilament, medium polypeptide	30	Mm.9703	(Manual) copper transport protein/cha-
Mm.142140 Mm.140761	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C,	30		(Manual) copper transport protein/cha- perone ATOX1
Mm.140761	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5	30	Mm.930	perone ATOX1 cathepsin L
Mm.140761 Mm.139797	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587	30		perone ATOX1 cathepsin L nerve growth factor receptor
Mm.140761 Mm.139797 Mm.139239	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene		Mm.930 Mm.90787	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1
Mm.139797 Mm.139239 Mm.139239	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene	<i>30</i>	Mm.930 Mm.90787 Mm.90587	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.139239	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene		Mm.930 Mm.90787 Mm.90587 Mm.90115	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.139239 Mm.138866	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E		Mm.930 Mm.90787 Mm.90587	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote-
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.139239 Mm.138866 Mm.13859	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41		Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.139239 Mm.138866	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI)	<i>3</i> 5	Mm.930 Mm.90787 Mm.90587 Mm.90115	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo-
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138239 Mm.138866 Mm.13859 Mm.1383	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma		Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120	<i>3</i> 5	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase	<i>3</i> 5	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma-
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B	<i>3</i> 5	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA)
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene	<i>35</i>	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2	<i>3</i> 5	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub-
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1	<i>35</i>	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin)	<i>35</i>	Mm.930 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Pro-	<i>35</i>	Mm.930 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro-
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares	35 40 45	Mm.930 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.872861	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1
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Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares	35 40 45	Mm.930 Mm.90787 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.87296 Mm.7417	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares mouse hypothalamus NMHy Mus mus- culus cDNA clone 1617043 5' similar to	35 40 45	Mm.930 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.87581 Mm.87293 Mm.87216 Mm.87293 Mm.87216	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3 RNA polymerase 1-4 (194 kDa subunit)
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138866 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.1339 Mm.131127 Mm.12958 Mm.12860 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares mouse hypothalamus NMHy Mus mus- culus cDNA clone 1617043 5' similar to gb:M54927 MYELIN PROTEOLIPID	35 40	Mm.930 Mm.90787 Mm.90787 Mm.90587 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.87296 Mm.7416 Mm.76780 Mm.7417 Mm.7387	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138239 Mm.13859 Mm.13859 Mm.135621 Mm.13445 Mm.13445 Mm.131127 Mm.12958 Mm.1268 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares mouse hypothalamus NMHy Mus musculus cDNA clone 1617043 5' similar to gb:M54927 MYELIN PROTEOLIPID PROTEIN	35 40	Mm.930 Mm.90787 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.87296 Mm.7416 Mm.76780 Mm.7417 Mm.7387 Mm.7381	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3 RNA polymerase 1-4 (194 kDa subunit) hypoxia induced gene 1
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138239 Mm.13859 Mm.13859 Mm.135621 Mm.13445 Mm.13445 Mm.131127 Mm.12958 Mm.1268 Mm.1268 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares mouse hypothalamus NMHy Mus musculus cDNA clone 1617043 5' similar to gb:M54927 MYELIN PROTEOLIPID PROTEIN glioblastoma amplified sequence expressed sequence AW214631 glial fibrillary acidic protein	35 40 45	Mm.930 Mm.90787 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.87296 Mm.7417 Mm.7387 Mm.7387 Mm.7381 Mm.725	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3 RNA polymerase 1-4 (194 kDa subunit) hypoxia induced gene 1 ribosomal protein L7a ESTs
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138239 Mm.13859 Mm.13859 Mm.135621 Mm.13445 Mm.13445 Mm.131127 Mm.12958 Mm.1268 Mm.1268 Mm.1268 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares mouse hypothalamus NMHy Mus mus- culus cDNA clone 1617043 5' similar to gb:M54927 MYELIN PROTEOLIPID PROTEIN glioblastoma amplified sequence expressed sequence AW214631	35 40 45	Mm.930 Mm.90787 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.87216 Mm.7416 Mm.7417 Mm.7387 Mm.7381 Mm.725 Mm.71046	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3 RNA polymerase 1-4 (194 kDa subunit) hypoxia induced gene 1 ribosomal protein L7a
Mm.140761 Mm.139797 Mm.139239 Mm.139239 Mm.138239 Mm.13859 Mm.13859 Mm.1383 Mm.135621 Mm.13445 Mm.13445 Mm.13445 Mm.12958 Mm.12958 Mm.1268 Mm.1268 Mm.1268 Mm.1268	neurofilament, medium polypeptide DnaJ (Hsp40) homolog, subfamily C, member 5 expressed sequence Al848587 RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene RIKEN cDNA 2900016C05 gene apolipoprotein E ribosomal protein L41 Rho GDP dissociation inhibitor (GDI) gamma expressed sequence Al848120 3-oxoacid CoA transferase chromogranin B RIKEN cDNA 6230410L23 gene kinesin light chain 2 G protein-coupled receptor 37-like 1 proteolipid protein (myelin) (Manual assignment) PLP Myelin Proteolipid Protein, uh05d10.r1 Soares mouse hypothalamus NMHy Mus musculus cDNA clone 1617043 5' similar to gb:M54927 MYELIN PROTEOLIPID PROTEIN glioblastoma amplified sequence expressed sequence AW214631 glial fibrillary acidic protein	35 40 45	Mm.930 Mm.90787 Mm.90787 Mm.90787 Mm.90115 Mm.90003 Mm.88302 Mm.88212 Mm.87581 Mm.87293 Mm.87216 Mm.87216 Mm.7416 Mm.7417 Mm.7387 Mm.7381 Mm.725 Mm.71046 Mm.70127	perone ATOX1 cathepsin L nerve growth factor receptor (TNFRSF16) associated protein 1 enolase 1, alpha non-neuron lysophospholipase 1 gap junction membrane channel prote- in beta 3 EST, Weakly similar to S14234 hypo- thetical protein - mouse tubulin, alpha 6 (Manual) fibronectin 1, internal tag (ma- jor tag probably AAAAAAAAAA) WD repeat domain 12 Rab geranylgeranyl transferase, a sub- unit TG interacting factor nucleolar and coiled-body phosphopro- tein 1 ESTs cyclin D3 RNA polymerase 1-4 (194 kDa subunit) hypoxia induced gene 1 ribosomal protein L7a ESTs ribosomal protein L12

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Mm.69049	cDNA sequence AF155546			IMAGE:3992883, mRNA, complete cds
Mm.6700	eukaryotic translation initiation factor 4E binding protein 1		Mm.3845	Mus musculus, eukaryotic translation termination factor 1, clone MGC:18745
Mm.66	ribosomal protein S4, X-linked			IMAGE:3992883, mRNA, complete cds
Mm.6579	centromere autoantigen A	5	Mm.38151	adenylosuccinate lyase
Mm.6534	calpain, small subunit 1		Mm.38057	ESTs
Mm.6343	nucleophosmin 1		Mm.3776	Mus musculus, clone MGC:37810
Mm.584	annexin A2			IMAGE:5098241, mRNA, complete cds
Mm.57223	helicase, lymphoid specific		Mm.3752	RAN binding protein 1
Mm.57153	sterol O-acyltransferase 2	10		B-cell receptor-associated protein 37
Mm.5624	DEAD/H (Asp-Glu-Ala-Asp/His) box		Mm.360	cytochrome c oxidase, subunit Va
Man E 40	polypeptide 16		Mm.3572	RIKEN cDNA 1110033J19 gene
Mm.548 Mm.5305	cytochrome c oxidase, subunit VIc		Mm.35621	ESTs
WIII1.5305	(Manual) GNB2L1, RACK1, Receptor	15	Mm.35605	cadherin 1
	of activated C kinase, WD40-repeat protein	13	Mm.3487	ribosomal protein L30
Mm.5290	(Manual) 60S ribosomal protein L17		Mm.3486 Mm.34828	ribosomal protein L3
	(L23) (popey3-annotation wrong)		Mm.34797	heat shock protein, 105 kDa cellular retinolc acid binding protein!
Mm.4993	matrix metalloproteinase 3		Mm.34606	RIKEN cDNA 2610511F02 gene
Mm.493	CCCTC-binding factor	20	Mm.34554	Mus musculus, Similar to E2F trans-
Mm.4890	Finkel-Biskis-Reilly murine sarcoma vi-			cription factor 4, p107/p130-binding,
	rus (FBR-MuSV) ubiquitously expres-			clone MGC:37558 IMAGE:4987691,
	sed (fox derived)			mRNA, complete cds
Mm.4770	frizzled homolog 7 (Drosophila)		Mm.3438	lamin A
Mm.4742	proliferation-associated 2G4, 38kD	25	Mm.34351	Mus musculus, Similar to hypothetical
Mm.46461	L-threonine dehydrogenase			protein FLJ13187, clone MGC:28979
Mm.4606	branched chain aminotransferase 1,			IMAGE:4503757, mRNA, complete cds
	cytosolic		Mm.34102	ornithine decarboxylase, structural
Mm.4560	low density lipoprotein receptor-related		Mm.3379	serine hydroxymethyl transferase 1
	protein associated protein 1	30		(soluble)
Mm.45237	RIKEN cDNA 2610318N02 gene		Mm.33240	epithelial V-like antigen
Mm.45151	RIKEN cDNA 1700043E15 gene		Mm.33202	RIKEN cDNA 2410018A17 gene
Mm.4502	mini chromosome maintenance de-		Mm.32879	testis expressed gene 17
Mm.43831	ficient (S. cerevisiae)	25	Mm.321	secreted phosphoprotein 1
Mm.43162	lectin, galactose binding, soluble 1 RIKEN cDNA 0710008D09 gene	35	Mm.318 Mm.31227	RIKEN cDNA 2010107E04 gene
Mm.42960	RIKEN cDNA 2610301D06 gene		Mm.30929	expressed sequence AW123847 peroxiredoxin 1
Mm.4280	RIKEN cDNA 2010203J19 gene		Mm.3049	CDC28 protein kinase 1
Mm.42790	ribosomal protein S18		Mm.30242	peptidylprolyl isomerase D (cyclophilin
Mm.42767	ribosomal protein S17	40	141111.00242	D)
Mm.42197	proteasome (prosome, macropain)		Mm.30184	RIKEN cDNA 2700086123 gene
	subunit, beta type 1		Mm.30114	amyotrophic lateral sclerosis 2 (juveni-
Mm.42196	nuclear protein 95			le) homolog (human)
Mm.42195	RuvB-like protein 1		Mm.30060	RIKEN cDNA 2310008N12 gene
Mm.41467	Mus musculus, clone MGC:28892	45	Mm.30049	complement component 1, q subcom-
	IMAGE:4912251, mRNA, complete cds			ponent binding protein
Mm.41151	ESTs		Mm.30034	translocase of inner mitochondrial
Mm.41061	RIKEN cDNA 1810055P05 gene			membrane 8 homolog a (yeast)
Mm.41	(Manual) Mitochondrial ATP synthase		Mm.29904	mitochondrial ribosomal protein L15
	oligomycin sensitivity conferral protein	50	Mm.29902	Mus musculus, Similar to phosphoseri-
14 4005	(OSCP) (ATP5O)			ne aminotransferase, clone MGC:6462
Mm.4095	inactive X specific transcripts		M., 0005	IMAGE:2616298, mRNA, complete cds
Mm.4024	cofilin 1, non-muscle		Mm.29859	eukaryotic translation initiation factor 2,
Mm.3925 Mm.38718	S100 calcium binding protein A4	e e	Mm 00050	subunit 2 (beta, 38kDa)
Mm.38718	ESTs, Moderately similar to S12207 hypothetical protein	55	Mm.29856	RIKEN cDNA 9130022B02 gene
Mm.3845	Mus musculus, eukaryotic translation		Mm.29717	3-monooxgenase/tryptophan 5-mo- nooxgenase activation protein, gamma
	termination factor 1, clone MGC: 18745			polypeptide
				polypopular

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Mm.29714	(Manual) mouse version of muscle-			tor), member 13
	specific protein M9		Mm.24506	Mus musculus, clone IMAGE:3591061,
Mm.29675	thioredoxin-like 2			mRNA, partial cds
Mm.29619	RIKEN cDNA 1200007E24 gene		Mm.2437	BING4 protein
Mm.29513	NADH dehydrogenase (ubiquinone) 1	5	Mm.2424	ribosomal protein L10A
	alpha subcomplex, 7 (14.5kD, B14.5a)		Mm.24220	RIKEN cDNA 2310003F16 gene
Mm.29504	sperm specific antigen 1		Mm.24219	RIKEN cDNA 1810037117 gene
Mm.2942	asparagine synthetase		Mm.24174	Mus musculus, similar to alanyi-tRNA
Mm.29405	ring-box 1			synthetase (H. sapiens), clone MGC:
Mm.29363	RIKEN cDNA 2310044F10 gene	10		37368 IMAGE:4976684, mRNA, com-
Mm.2930	Mus musculus, Similar to peter pan (Drosophila) homolog, clone MGC:		M 0005	plete cds
	25669 IMAGE:4489442, mRNA, com-		Mm.2395 Mm.2355	male enhanced antigen 1
	plete cds		Mm.235	prohibitin ubiquitin B
Mm.29192	asparaginyl-tRNA synthetase	15		integrin beta 4 binding protein
Mm.29148	RIKEN cDNA 2400008B06 gene		Mm.22626	Mus musculus, Similar to chromosome
Mm.29122	RIKEN cDNA 0610012D09 gene			14 open reading frame 3, clone MGC:
Mm.29076	RIKEN cDNA 2510010F10 gene			36589 IMAGE:5320590, mRNA, com-
Mm.28919	destrin			plete cds
Mm.28892	expressed sequence AA959742	20	Mm.2246	proteasome (prosome, macropain)
Mm.28805	SET translocation			subunit, beta type 7
Mm.2849	heat shock protein, 74 kDa, A		Mm.22421	telomerase binding protein, p23
Mm.28483	Mus musculus, Similar to hypothetical		Mm.22421	telomerase binding protein, p23
	protein FLJ22479, clone IMAGE:		Mm.22317	RIKEN cDNA 8430410A17 gene
M== 00405	4487274, mRNA, partial cds	25	Mm.22288	cyclin D1
Mm.28405 Mm.28173	serum/glucocorticoid regulated kinase ESTs, Moderately similar to JC5224		Mm.22271	smt3-specific isopeptidase 1
WIIII.20173	methioninetRNA ligase		Mm.220992	Mus musculus, clone IMAGE:3492506,
Mm.28053	RIKEN cDNA 1110017C15 gene		Mm.219671	mRNA, partial cds Mus musculus, clone MGC:36369
Mm.28035	ESTs, Weakly similar to	30	WIII. 273077	IMAGE:4982239, mRNA, complete cds
	TRHY_HUMAN TRICHOHYALI		Mm.219458	RNA binding protein gene with multiple
Mm.27901	RIKEN cDNA 1110020J08 gene			splicing
Mm.27858	RIKEN cDNA 1110036B12 gene		Mm.218533	RIKEN cDNA 1500016H10 gene
Mm.27855	replication factor C (activator 1) 2		Mm.2180	heat shock protein, 84 kDa 1
	(40kD)	35	Mm.21758	cytochrome P450, 2e1, ethanol induci-
Mm.2758	makorin, ring finger protein, 3			ble
Mm.27536	ESTs, Highly similar to hypothetical		Mm.21630	expressed sequence AU022237
Mm 07506	protein FLJ14075		Mm.21569	RIKEN cDNA 2700069E09 gene
Mm.27526	(Manual) Arginyl tRNA synthetase (RI-	40	Mm.213020	(Manual) 60S ribosomal protein L32
Mm.27186	KEN cDNA 2610011N19) Mus musculus, Similar to CG7083 ge-	40	Mm.212899	(RPL32)
	ne product, clone MGC:6480 IMAGE:		WIII.2 12099	Mus musculus, Similar to RIKEN cDNA 1200009K13 gene, clone MGC: 18794
	2646515, mRNA, complete cds			IMAGE:4193513, mRNA, complete cds
Mm.2718	eukaryotic translation elongation factor		Mm.21289	ribosomal protein S12
	1 beta 2	45	Mm.21086	eukaryotic translation elongation factor
Mm.2718	eukaryotic translation elongation factor			1 delta (guanine nucleotide exchange
	1 beta 2			protein)
Mm.27134	RIKEN cDNA 2610033C09 gene		Mm.210638	EST
Mm.265	ribosomal protein S25		Mm.21062	expressed sequence C87860
Mm.2647	profilin 1	50	Mm.21054	nuclease sensitive element binding
Mm.2623	serine (or cysteine) proteinase inhibitor,			protein 1
Mm.25642	clade B (ovalbumin), member 6		Mm.20943	FK506 binding protein 9
Mm.254	RIKEN cDNA 2310034K10 gene tumor protein, translationally-controlled		Mm.20925 Mm.20918	G1 to phase transition 1
	1	55	·*#11.2U310	nuclear localization signal protein absent in velo-cardio-facial patients
Mm.25328	ESTs		Mm.20848	regulatory factor X-associated ankyrin-
Mm.24513	solute carrier family 25 (mitochondrial			containing protein
	carrier; adenine nucleotide transloca-		Mm.20847	sorting nexin 5
				·

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Mm.20294 Mm.20290 Mm.20288 Mm.200920 Mm.197601	selenophosphate synthetase 2 expressed sequence AW536573 glutathione reductase 1 ribosomal protein S28 heat shock 10 kDa protein 1 (chaperonin 10)	5	Mm.157778 Mm.154915 Mm.154387 Mm.153963 Mm.153159 Mm.152291	RIKEN cDNA 2610034E13 gene ribosomal protein S29 transketolase CD8 antigen, beta chain chaperonin subunit 6a (zeta) EST
Mm.197555 Mm.197551 Mm.196604	hypothetical protein MGC6664 heat shock 70kD protein 8 angio-associated migratory protein, re- lated sequence	10	Mm.151329 Mm.148973 Mm.147946 Mm.147693	karyopherin (importin) beta 3 RIKEN cDNA 3010025E17 gene MYB binding protein (P160) 1a ribosomal protein S3
Mm.196586 Mm.196581 Mm.196526	cullin 2 mitogen activated protein kinase 1 ADP-ribosylation factor 6		Mm.14768 Mm.14663	reduced expression 3 ATP synthase, H+ transporting, mi-
Mm.196396 Mm.196081	tubulin, alpha 1 peptidylprolyl isomerase (cyclophilin)-	15	Mm.143141	tochondrial F0 complex, subunit g eukaryotic translation initiation factor 1A
Mm.196	like 1 neural precursor cell expressed, de-		Mm.142740 Mm.14245	metallothionein 2 ribosomal protein, large P2
Mm.195894	velopmentally down-regulated gene 8 Mus musculus, clone MGC:11792 IMAGE:3595167, mRNA, complete cds	20	Mm.14244 Mm.141443	ribosomal protein L9 lactate dehydrogenase 1, A chain
Mm.19169 Mm.188	thioredoxin-like (32kD) (Manual) X-linked phosphoglycerate ki-	20	Mm.141187 Mm.140380 Mm.139825	trans-golgi network protein 2 ribosomal protein L23 Mus musculus, Similar to xylosylprotein
Mm.18637	nase (PGK1) teratocarcinoma expressed, serine rich			betal,4-galactosyltransferase, poly- peptide 7 (galactosyltransferase I), clo-
Mm. 18459 Mm.183022	fibroblast growth factor inducible 14 DNA segment, Chr 8, Brigham & Wo-	25	14 40705	ne MGC: 28643 IMAGE:4224150, mR-NA, complete cds
Mm.182951	men's Genetics 1112 expressed proteasome (prosome, macropain) subunit, alpha type 2		Mm.13705	(Manual) mouse version of p180 ribo- some receptor/ribosome binding prote- in 1 RRBP1
Mm.182931	phosphoribosylaminoimidazole car- boxylase, phosphoribosylaminoimidazole, succinocarboxamide	30	Mm.13020 Mm.12909	ribosomal protein L13a amyloid beta (A4) precursor protein- binding, family A, member 3
Mm.182471 Mm.181765	synthetase RIKEN cDNA 2610524G07 gene Mus musculus 8 days embryo whole	35	Mm.1275 Mm.12508 Mm.1164	thioredoxin 1 karyopherin (importin) alpha 2 SEC61, gamma subunit (S. cerevisiae)
	body cDNA, RIKEN full-length enriched library, clone:5730409M10:CCAAT/enhancer binding protein alpha (C/EBP),		Mm.11376 Mm.1125	ribosomal protein L36 expressed in non-metastatic cells 2, protein (NM23B) (nucleoside diphos-
	related sequence 1, full insert sequence	40	Mm.1120	phate kinase) endometrial bleeding associated factor
Mm.181740	interferon-related developmental regulator 2		Mm.108076 Mm.10706	phosphofructokinase, platelet RIKEN cDNA 2010004J23 gene
Mm.180299	DNA segment, Chr 16, Wayne State University 109, expressed		Mm.10706	(Manual) mouse version of 60S riboso- mal protein L4
Mm.17932 Mm.1777 Mm.176845	purine-nucleoside phosphorylase heat shock protein, 60 kDa RIKEN cDNA 1110069M14 gene	45	Mm.10702 Mm.10665	calcyclin binding protein Mus musculus, clone IMAGE:3498496, mRNA, partial cds
Mm.175848	(Manual) small Ca-binding protein Calgizzarin (S100A11) (ENDOTHELIAL		Mm.10623 Mm.10600	expressed sequence Al480570 glutamate dehydrogenase
Mm.175661	MONOCYTE-ACTIVATING POLYPEP- TIDE) (EMAP) RIKEN cDNA 1110036C17 gene	50	Mm.1056 Mm.10474 Mm.101619	solute carrier family 1, member 7 RIKEN cDNA 3110005M08 gene EST
Mm.1710 Mm.17031	hydroxymethylbilane synthase POU domain, class 5, transcription fac-		Mm.10 Mm.4325	spermidine synthase Kruppel-like factor 4 (gut) [Swissprot:
Mm.16757	tor 1 solute carrier family 20, member 1	55	Mm 10010	splQ60793;splQ9R255;]
Mm.1639 Mm.16110	myeloid cell leukemia sequence 1 cyclin E1		Mm.12919 Mm.20348	insulin-like growth factor 2, binding pro- tein 1 [Swissprot: splO88477;] nidogen 2 [Swissprot: splO88322;

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Mm.34407	splQ8R5G0;splQ9CT94;]		Mm.7793	protein phosphatase 1, catalytic subu-
141111.54407	MAD homolog 7 (Drosophila) [Swiss-prot: splO35253;splQ9CSC7;]		Mm 7700	nit, gamma isoform
Mm.4451	hairy and enhancer of split 1, (Droso-		Mm.7723 Mm.76278	poly(A) binding protein, nuclear 1
141111.7701	phila) [Swissprot: none]	5	Mm.7516	RIKEN cDNA 2610203K23 gene
Mm.57195	nodal [Swissprot: none]	,	WITH.7516	nuclear autoantigenic sperm protein (hi-
Mm.1249			Mm 7010	stone-binding)
141111.1243	laminin, gamma 1 [Swissprot: spl P02468;]		Mm.7312	DNA segment, Chr 17, human D6S56E
Mm.27706	ash2 (absent, small, or homeotic)-like		Mm.7141	proliferating cell nuclear antigen
	(Drosophila) [Swissprot:	10	Mm.6787	splicing factor, arginine/serine-rich 3
Mm.4603	scavenger receptor class B1 [Swiss-			(SRp20)
	prot: splQ61009;splQ9CWJ7;]		Mm.66	ribosomal protein S4, X-linked
Mm.181562	adhesion regulating molecule 1 [Swis-		Mm.6476	RIKEN cDNA 2700084L22 gene
	sprot: splQ8VCl8;splQ922A7;		Mm.64104	RIKEN cDNA 2410016F19 gene
	splQ9JKV1;]	15	Mm.6343	nucleophosmin 1
Mm.43444	MAD2 (mitotic arrest deficient, homo-		Mm.61901	expressed sequence Al429604
	log)-like 1 (yeast) [Swissprot:		Mm.6065	inosine 5'-phosphate dehydrogenase 2
Mm.103675	sacsin [Swissprot: none]		Mm.5624	DEAD/H (Asp-Glu-Ala-Asp/His) box po-
Mm.980	tenascin C [Swissprot: splQ64706;			lypeptide 16
	splQ9WUU4;]	20	Mm.548	cytochrome c oxidase, subunit VIc
Mm.5090	cripto, teratocarcinoma-derived growth		Mm.5305	guanine nucleotide binding protein, beta
	factor (Tdgf1)			2, related sequence 1
Mm.30177	D11Ertd603e, DNA segment, Chr 11,		Mm.525	eukaryotic translation initiation factor 4,
	ERATO Doi 603			gamma 2
Mm.233844	C330012H03Rik, RIKEN cDNA	25	Mm.5114	dishevelled 2, dsh homolog (Drosophi-
	C330012H03			la)
			Mm,4933	mini chromosome maintenance de-
Liste E: Posi	tivmarker neurale Stammzellen (2.);			ficient 6 (S. cerevisiae)
			Mm.4890	Finkel-Biskis-Reilly murine sarcoma vi-
E0 = "				
ES-Zellen +;	PSA-NCAM -/+; Adult brain -	30		
ES-Zellen +;	PSA-NCAM -/+; Adult brain -	30		rus (FBR-MuSV) ubiquitously expres-
ES-Zellen +;	PSA-NCAM -/+; Adult brain -	30	Mm.4846	
	PSA-NCAM -/+; Adult brain -	30	Mm.4846 Mm.4756	rus (FBR-MuSV) ubiquitously expres- sed (fox derived) lamin B1
	PSA-NCAM -/+; Adult brain - cytosolic aminopeptidase P	30		rus (FBR-MuSV) ubiquitously expres- sed (fox derived) lamin B1 leptin receptor
[0043]		<i>30</i>	Mm.4756	rus (FBR-MuSV) ubiquitously expres- sed (fox derived) lamin B1 leptin receptor expressed sequence Al316867
[0043] Mm.99776	cytosolic aminopeptidase P		Mm.4756 Mm.46754	rus (FBR-MuSV) ubiquitously expres- sed (fox derived) lamin B1 leptin receptor
[0043] Mm.99776 Mm.9916	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene		Mm.4756 Mm.46754 Mm.46533	rus (FBR-MuSV) ubiquitously expres- sed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2
[0043] Mm.99776 Mm.9916 Mm.99	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2		Mm.4756 Mm.46754 Mm.46533 Mm.4551	rus (FBR-MuSV) ubiquitously expres- sed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene		Mm.4756 Mm.46754 Mm.46533 Mm.4551	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre-		Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3l0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1	35	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3l0, similar to E.coli rtcB, UPF0027-family	35	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5
[0043] Mm.99776 Mm.9916 Mm.98 Mm.9811 Mm.9257	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3l0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1	35	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45149	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs
[0043] Mm.99776 Mm.9916 Mm.98 Mm.9811 Mm.9257	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re-	35	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45149 Mm.45132	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2	35	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45149 Mm.45132 Mm.45132	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin-	<i>35</i>	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45149 Mm.45132 Mm.45132	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homo-
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2	<i>35</i>	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45149 Mm.45132 Mm.4426 Mm.43444	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast)
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro-	<i>35</i>	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45149 Mm.45132 Mm.4426 Mm.43444 Mm.4280	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89927 Mm.89579	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1	<i>35</i>	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.43444 Mm.4280 Mm.42767	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89579 Mm.89136	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A	<i>35</i>	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.43444 Mm.4280 Mm.42767 Mm.4237	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89579 Mm.89136 Mm.88212	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6	35 40 45	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.43444 Mm.4280 Mm.42767 Mm.4237	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) sub-
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89579 Mm.89136 Mm.88212 Mm.880	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6	35 40 45	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.43444 Mm.4280 Mm.42767 Mm.4237 Mm.42197	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89927 Mm.89579 Mm.89136 Mm.88212 Mm.880 Mm.8552	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6 baculoviral IAP repeat-containing 5	35 40 45	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.4280 Mm.42767 Mm.4237 Mm.42197	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1 catalase 1 RIKEN cDNA 6530409L22 gene cyclin A2
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89579 Mm.89136 Mm.88212 Mm.880	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6 baculoviral IAP repeat-containing 5 KH domain containing, RNA binding, si-	35 40 45	Mm.4756 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.4280 Mm.42767 Mm.42767 Mm.42197 Mm.4215 Mm.4215 Mm.41940	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1 catalase 1 RIKEN cDNA 6530409L22 gene
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89927 Mm.89579 Mm.89136 Mm.8852 Mm.8852 Mm.8852 Mm.8256	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6 baculoviral IAP repeat-containing 5 KH domain containing, RNA binding, si- gnal transduction associated 1	35 40 45	Mm.4756 Mm.46754 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.4280 Mm.42767 Mm.42767 Mm.42197 Mm.42197	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1 catalase 1 RIKEN cDNA 6530409L22 gene cyclin A2
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89579 Mm.89579 Mm.885212 Mm.880 Mm.8552 Mm.8256 Mm.8155	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6 baculoviral IAP repeat-containing 5 KH domain containing, RNA binding, si- gnal transduction associated 1 TG interacting factor	35 40 45	Mm.4756 Mm.46754 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.4280 Mm.42767 Mm.42767 Mm.42197 Mm.4215 Mm.41940 Mm.4189 Mm.41023 Mm.4078	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1 catalase 1 RIKEN cDNA 6530409L22 gene cyclin A2 RIKEN cDNA 1110021E09 gene antigen identified by monoclonal antibody Ki 67
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89927 Mm.89579 Mm.89136 Mm.8852 Mm.8852 Mm.8852 Mm.8256	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6 baculoviral IAP repeat-containing 5 KH domain containing, RNA binding, si- gnal transduction associated 1 TG interacting factor nucleolar and coiled-body phosphopro-	35 40 45	Mm.4756 Mm.46754 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4550 Mm.45312 Mm.45132 Mm.45132 Mm.4266 Mm.42767 Mm.42767 Mm.42767 Mm.42197 Mm.4215 Mm.41940 Mm.4189 Mm.41023	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1 catalase 1 RIKEN cDNA 6530409L22 gene cyclin A2 RIKEN cDNA 1110021E09 gene antigen identified by monoclonal antibody Ki 67 laminin receptor 1 (67kD, ribosomal pro-
[0043] Mm.99776 Mm.9916 Mm.99 Mm.9811 Mm.9257 Mm.925 Mm.918 Mm.911 Mm.9043 Mm.89927 Mm.89579 Mm.89579 Mm.885212 Mm.880 Mm.8552 Mm.8256 Mm.8155	cytosolic aminopeptidase P RIKEN cDNA 1200008012 gene ribonucleotide reductase M2 RIKEN cDNA 2310008M10 gene (Manual) uncharacterized protein corre- sponding to human splQ9Y3I0, similar to E.coli rtcB, UPF0027-family transcription factor Dp 1 heat shock 70kD protein 5 (glucose-re- gulated protein, 78kD) high mobility group nucleosomal bin- ding domain 2 heterogeneous nuclear ribonucleopro- tein L signal recognition particle 9 kDa mannose-P-dolichol utilization defect 1 H3 histone, family 3A tubulin, alpha 6 mammary tumor integration site 6 baculoviral IAP repeat-containing 5 KH domain containing, RNA binding, si- gnal transduction associated 1 TG interacting factor	35 40 45	Mm.4756 Mm.46754 Mm.46754 Mm.46533 Mm.4551 Mm.4550 Mm.4541 Mm.45312 Mm.45132 Mm.45132 Mm.4426 Mm.4280 Mm.42767 Mm.42767 Mm.42197 Mm.4215 Mm.41940 Mm.4189 Mm.41023 Mm.4078	rus (FBR-MuSV) ubiquitously expressed (fox derived) lamin B1 leptin receptor expressed sequence Al316867 RIKEN cDNA 1110007L15 gene villin 2 ATPase, Na+/K+ transporting, beta 1 polypeptide SRY-box containing gene 2 anaphase-promoting complex subunit 5 ESTs expressed sequence AW121759 Cd63 antigen MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast) RIKEN cDNA 2010203J19 gene ribosomal protein S17 topoisomerase (DNA) II alpha proteasome (prosome, macropain) subunit, beta type 1 catalase 1 RIKEN cDNA 6530409L22 gene cyclin A2 RIKEN cDNA 1110021E09 gene antigen identified by monoclonal antibody Ki 67

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14 4004	e111 .			
Mm.4024	cofilin 1, non-muscle		Mm.29122	RIKEN cDNA 0610012D09 gene
Mm.3931	Max protein		Mm.29055	chromobox homolog 1 (Drosophila HP1
Mm.38930	expressed sequence AA407558			beta)
Mm.38912	RIKEN cDNA 2410129H14 gene		Mm.29054	RIKEN cDNA 2610529112 gene
Mm.38611	RIKEN cDNA 2210021A15 gene	5	Mm.29005	expressed sequence AU021749
Mm.38528	RIKEN cDNA 2810430M08 gene		Mm.28995	RIKEN cDNA 2010009J12 gene
Mm.38306	macrophage erythroblast attacher		Mm.28985	ribosomal protein L27
Mm.3797	nucleosome assembly protein 1-like 1		Mm.28965	RIKEN cDNA 0710007A14 gene
Mm.37835	ribosomal protein L7		Mm.28964	Mus musculus, clone IMAGE:4949762,
Mm.372	ribosomal protein S26	10		mRNA, partial cds
Mm.36511	mitochondrial ribosomal protein L32			- ·
Mm.35844	growth arrest specific 5		Mm.28961	cleavage and polyadenylation specific
Mm.35829	-		14	factor 5, 25 kD subunit
	erythroid differentiation regulator		Mm.28909	protein tyrosine phosphatase 4a1
Mm.35661	Mus musculus, Similar to hypothetical		Mm.28899	RIKEN cDNA 1110059P08 gene
	protein, clone MGC:29235 IMAGE:	15	Mm.28805	SET translocation
	5043282, mRNA, complete cds		Mm.28805	SET translocation
Mm.35087	expressed sequence AA673488		Mm.28805	SET translocation
Mm.3501	kinesin family member C5A		Mm.28726	EST C77032
Mm.34914	ESTs		Mm.28694	RIKEN cDNA 2410088K19 gene
Mm.3487	ribosomal protein L30	20	Mm.28560	Ly1 antibody reactive clone
Mm.3444	bromodomain-containing 2		Mm.28499	Mus musculus, similar to CG15881 ge-
Mm.34385	expressed sequence Al450344			ne product (H. sapiens), clone MGC:
Mm.34261	expressed sequence AW557761			36308 IMAGE:5040108, mRNA, com-
Mm.3381	ribosomal protein S8			plete cds
Mm.3380	kinesin family member 5B	25	Mm.28299	•
Mm.3360	tyrosine 3-monooxygenase/tryptophan	20	141111.20299	ESTs, Highly similar to GUAA_HUMAN
WIII.5550			M 00000	GMP SYNTHASE
	5-monooxygenase activation protein,		Mm.28222	RIKEN cDNA 2610307C23 gene
Mm 000	zeta polypeptide		Mm.28121	RIKEN cDNA 1110061A19 gene
Mm.326	RIKEN cDNA 1110038L14 gene		Mm.28044	filamin-like protein
Mm.320	DNA polymerase alpha 2, 68 kDa	30	Mm.27972	NS1-associated protein 1
Mm.3199	RIKEN cDNA 1500001N04 gene		Mm.27927	heterogeneous nuclear ribonucleopro-
Mm.31512	ring finger protein 2			tein A1
Mm.31228	RIKEN cDNA 1810022K09 gene		Mm.27852	expressed sequence AW555814
Mm.30806	ribosomal protein L19		Mm.27818	eukaryotic translation elongation factor
Mm.3054	alpha-L-iduronidase	35		2
Mm.3035	RIKEN cDNA 3110006P09 gene		Mm.27796	RIKEN cDNA 5730427N09 gene
Mm.30270	proteasome (prosome, macropain) sub-		Mm.27669	small nuclear ribonucleoprotein E
	unit, alpha type 4		Mm.27660	RIKEN cDNA 5730420G12 gene
Mm.30120	ribosomal protein S27-like		Mm.27624	RIKEN cDNA C530002L11 gene
Mm.30069	RIKEN cDNA 1200003J11 gene	40	Mm.27293	•
Mm.30011	ribosomal protein S23		Mm.27269	RIKEN cDNA 4833420K19 gene
Mm.29931	cell division cycle 20 homolog (S. cere-			RIKEN cDNA 2310037I24 gene
141111.25501			Mm.27141	Rac GTPase-activating protein 1
Mm 00000	visiae)		Mm.27074	RIKEN cDNA 2610019N13 gene
Mm.29923	SMT3 (supressor of mif two, 3) homolog		Mm.265	ribosomal protein S25
1400044	2 (S. cerevisiae)	45	Mm.2591	RNA binding motif protein 3
Mm.29911	RIKEN cDNA 3200001M24 gene		Mm.25558	RIKEN cDNA 2410018J24 gene
Mm.29896	ribosomal protein L21		Mm.25542	(Manual) strange EST contig in intron of
Mm.2986	expressed sequence AW146116			p137 (GPI-anchored transcytosis prote-
Mm.29829	expressed sequence Al326010			in), maybe afternative C-terminus of
Mm.29666	solute carrier family 25 (mitochondrial	50		splQ60865
	carnitine/acylcarnitine translocase),		Mm.254	tumor protein, translationally-controlled
	member 20,			1
Mm.2966	isocitrate dehydrogenase 2 (NADP+),		Mm.25299	ESTs, Weakly similar to simple repeat
	mitochondrial			sequence-containing transcript
Mm.29296	RIKEN cDNA 1110003H02 gene	55	Mm.25164	gene trap locus 1-13
Mm.29194				
	RIKEN CUNA 1700094M07 dene		Mm 2512/	RIKEN CONA 2/1000/R19 cono
Mm.29133	RIKEN cDNA 1700094M07 gene		Mm.25137 Mm.24870	RIKEN cDNA 2410004B18 gene
Mm.29133	budding uninhibited by benzimidazoles 1 homolog, beta (S. cerevisiae)		Mm.25137 Mm.24870	RIKEN cDNA 2410004B18 gene (Manual assignment) UBP7 ubiquitin hydrolase

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Mm.24591	expressed sequence AW546279		Mm.21054	nuclease sensitive element binding pro-
Mm.2424	ribosomal protein L10A			tein 1
Mm.24219	RIKEN cDNA 1810037I17 gene		Mm.20927	transforming growth factor beta 1 indu-
Mm.24042	RIKEN cDNA 1210001E11 gene			ced transcript 4
Mm.23943	vesicle-associated membrane protein,	5	Mm.206399	ESTs
M 00750	associated protein A (33 kDa)		Mm.2038	Ras-GTPase-activating protein SH3-
Mm.23758 Mm.23695	RIKEN cDNA 1110008P04 gene		N 0005	domain binding protein
Mm.23692	dihydrofolate reductase casein kinase II, alpha 1 related se-		Mm.2025 Mm.200837	survival motor neuron
	quence 4	10	WiIII.200637	Mus musculus, clone IMAGE:5355658, mRNA
Mm.23096	protein phosphatase 2 (formerly 2A), re-		Mm.196614	eukaryotic translation elongation factor
	gulatory subunit B", alpha			1 alpha 1
Mm.2287	proteasome (prosome, macropain) sub-		Mm.196608	expressed sequence AA407306
	unit, alpha type 5		Mm.196526	ADP-ribosylation factor 6
Mm.22731	integrin beta 4 binding protein	15	Mm.196515	DNA segment, Chr 1, ERATO Doi 692,
Mm.2265 Mm.22387	U1 small nuclear ribonucleoprotein 1C		N 400000	expressed
Mm.22269	expressed sequence Al314668 exportin 1, CRM1 homolog (yeast)		Mm.196396 Mm.196365	tubulin, alpha 1
Mm.22214	RIKEN cDNA 2610008F03 gene		Mm.196328	RIKEN cDNA 4833416109 gene RIKEN cDNA 5830466J11 gene
Mm.220918	heterogeneous nuclear ribonucleopro-	20	Mm.195898	phosphatidylethanolamine binding pro-
	tein D-like			tein
Mm.220342	Mus musculus, clone IMAGE:3669867,		Mm.1951	ribonucleic acid binding protein S1
	mRNA, partial cds		Mm.1948	t-complex testis expressed 1
Mm.219670	Mus musculus, Similar to eukaryotic		Mm.193688	RIKEN cDNA 2700059D21 gene
	translation initiation factor 4 gamma, 1,	25	Mm.19187	prothymosin alpha
	clone IMAGE:4950789, mRNA, partial cds		Mm.19101	DEAD (aspartate-glutamate-alanine-
Mm.219668	RIKEN cDNA 2610209F03 gene		Mm.19015	aspartate) box polypeptide 5 serine racemase
Mm.219648	Mus musculus, Similar to nuclear matrix		Mm.18923	mini chromosome maintenance de-
	protein p84, clone MGC:28284 IMAGE:	30	***************************************	ficient 7 (S. cerevisiae)
	4010605, mRNA, complete cds		Mm.18921	valosin containing protein
Mm.21964	Mus musculus, clone IMAGE:3485208,		Mm. 18856	mitogen-activated protein kinase 6
	mRNA, partial cds		Mm.18705	vacuolar protein sorting 4b (yeast)
Mm.21873	retroviral integration site 1		Mm.18700	RIKEN cDNA 1200009K13 gene
Mm.218657 Mm.21841	cerebellar ataxia 3 splicing factor, arginine/serine-rich 2	35	Mm.18637	teratocarcinoma expressed, serine rich
141111.2 1041	(SC-35)		Mm.18516 Mm.1843	H3 histone, family 3B heat shock protein, 86 kDa 1
Mm.218240	Mus musculus, clone IMAGE:5342828,		Mm.183102	actin-related protein 3 homolog (yeast)
	mRNA, partial cds		Mm.183016	thymine DNA glycosylase
Mm.2180	heat shock protein, 84 kDa 1	40	Mm.181880	RIKEN cDNA 1110007A14 gene
Mm.21764	small nuclear ribonucleoprotein poly-		Mm.181562	adhesion regulating molecule 1
	peptide G		Mm.1815	cytidine 5'-triphosphate synthase
Mm.21714	RIKEN cDNA 2410003A14 gene		Mm.180873	RIKEN cDNA 2510019J09 gene
Mm.21559	non-POU-domain-containing, octamer binding protein	45	Mm.180873	(Manual) probably reverse tag of 60S ri-
Mm.213452	Mus musculus, clone IMAGE:5320271,	43	Mm.180409	bosomal protein L18a ubiquitin-conjugating enzyme E2H
	mRNA, partial cds		Mm.180271	RIKEN cDNA 5630400D24 gene
Mm.213020	(Manual) 60S ribosomal protein L32		Mm.17989	chaperonin subunit 8 (theta)
	(RPL32)		Mm.1777	heat shock protein, 60 kDa
Mm.21295	expressed sequence AW214031	50	Mm.1775	hematological and neurological expres-
Mm.21289	ribosomal protein S12			sed sequence 1
Mm.21281 Mm.21185	ring finger protein 4		Mm.177451	RIKEN cDNA 5730544L10 gene
WIIII.Z 1 100	adaptor-related protein complex AP-3, beta 1 subunit		Mm.17330 Mm.17306	ESTs tropomyosin 3, gamma
Mm.2115	heterogeneous nuclear ribonucleopro-	55	Mm.1703	tubulin, beta 5
,	tein U		Mm.16976	TAF9 RNA polymerase II, TATA box bin-
Mm.21094	DNA segment, Chr 9, Wayne State Uni-			ding protein (TBP)-associated factor, 32
	versity 138, expressed			kDa

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Mm.16775	ribosomal protein S24			cogene 1
Mm.16767	heterogeneous nuclear ribonucleopro-			cogene i
	tein A2/B1			·
Mm.16711	mini chromosome maintenance de-	5	Pa	tentansprüche
Mm.16525	ficient 2 (S. cerevisiae) polo-like kinase homolog, (Drosophila)	3	1.	Zellpopulation, dadurch gekennzelchnet, dass
Mm.1639	myeloid cell leukemia sequence 1		••	mindestens 5% der Zellen neurale Vorläuferzellen
Mm.16323	eukaryotic translation initiation factor			sind, die wenigstens einen der in Liste A oder Liste
	4A2			B aufgeführten Marker aufweisen.
Mm.16323	eukaryotic translation initiation factor	10	_	
Mm.156892	4A2 heterogeneous nuclear ribonucleopro-		2.	Zellpopulation, dadurch gekennzeichnet, dass
141111. 130032	tein D			mindestens 5% der Zellen, neurale Vorläuferzellen sind, die wenigstens zwei, bevorzugt wenigstens 3
Mm.15571	amyloid beta (A4) precursor protein			der in Liste A oder Liste B aufgeführten Marker
Mm.154915	ribosomal protein S29	15		aufweisen.
Mm.153457	RIKEN cDNA 2810406C15 gene			
Mm.148973	RIKEN cDNA 3010025E17 gene		3.	Zellpopulation, nach mindestens einem der An-
Mm.142872	heterogeneous nuclear ribonucleoprotein K			sprüche 1 bis 2, dadurch gekennzeichnet, dass
Mm.14245	ribosomal protein, large P2	20		die neuralen Vorläuferzellen keinen in Liste C aufgeführten Marker aufweisen.
Mm.14244	ribosomal protein L9			geldinteri Marker adiwelsen.
Mm.142363	RIKEN cDNA 2810036L13 gene		4.	Zellpopulation nach mindestens einem der Ansprü-
Mm.140804	Mus musculus, guanine nucleotide bin-			che 1 bis 3, dadurch gekennzeichnet, dass min-
	ding protein (G protein), gamma 5, clone			destens 25 % der Zellen neurale Vorläuferzellen
	MGC:8292 IMAGE:3593324, mRNA, complete cds	25		sind.
Mm.140380	ribosomal protein L23		5.	Zellpopulation nach mindestes einem der Ansprü-
Mm.13886	suppressor of initiator codon mutations,		J.	che 1 bis 4, dadurch gekennzeichnet, dass es
	related sequence 1 (S. cerevisiae)			sich um eine murine Zellpopulation handelt und/
Mm.133825	RIKEN cDNA 0610010123 gene	30		oder die neuralen Vorläuferzellen aus Hirngewebe
Mm.13356 Mm.131705	RIKEN cDNA 3110079L04 gene Mus musculus, Similar to single-stran-			erhältlich ist.
Will. 131703	ded DNA binding protein, clone MGC:		6.	Verfahren zur Isolierung einer Zellpopulation nach
	41439 IMAGE: 1314987, mRNA, com-		U.	mindestens einem der Ansprüche 1 bis 5 mit folgen-
	plete cds	35		den Schritten:
Mm.12858	eukaryotic translation initiation factor			
M= 10700	441			 a) Entnahme einer Probe aus dem Hirn
Mm.12706	Mus musculus, Similar to CG11246 gene product, clone MGC:8248 IMAGE:			h) lookieren der neuralen Vertäufernellen unter
	3591968, mRNA, complete cds	40		 b) Isolieren der neuralen Vorläuferzellen unter Verwendung der angegebenen Marker
Mm.12604	sirtuin 1 ((silent mating type information			verwending der angegebenen Marker
	regulation 2, homolog) 1 (S. cerevisiae)			oder
Mm.12568	expressed sequence AW541137			
Mm.12508 Mm.12441	karyopherin (importin) alpha 2	45		a) Differenzierung von embryonalen Stamm-
Mm.124	expressed sequence AU014645 thymopoietin	45		zellen zu neuralen Vorläuferzellen, b) Isolieren der neuralen Vorläuferzellen unter
Mm.12236	zinc finger protein 207			Verwendung der angegebenen Marker
Mm.12145	retinoblastoma binding protein 4			verwering cer angegezonen marker
Mm.116989	actin-like			oder
Mm.111	poly(rC) binding protein 2	50		
Mm.10706 Mm.10474	RIKEN cDNA 2110005M08 gane			a) Trans-Differenzierung von adulten, nicht
Mm.10474	RIKEN cDNA 3110005M08 gene golgi autoantigen, golgin subfamily a, 4			neuralen Stammzellen zu neuralen Vorläufer- zellen,
Mm. 103675	sacsin			2011011,
Mm.1013	ligase I, DNA, ATP-dependent	55		b) Isolieren der neuralen Vorläuferzellen unter
Mm.101274	RIKEN cDNA 2010008E23 gene			Verwendung der angegebenen Marker
Mm.10076 Mm.16469	mitochondrial ribosomal protein L13			ada.
Will, 10409	Nmycl, neuroblastoma myc-related on-			oder

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- a) Differenzierung von adulten, neuralen Stammzellen zu neuralen Vorläuferzellen,
- b) Isolieren der neuralen Vorläuferzeilen unter Verwendung der angegebenen Marker

oder

- a) Differenzierung von immortalisierten Zellen zu neuralen Vorläuferzellen,
- b) Isolieren der neuralen Vorläuferzellen unter Verwendung der angegebenen Marker.
- Verwendung mindestens eines Markers ausgewählt aus der Liste A oder Liste B zu Identifizierung oder Isolierung von neuralen Vorläuferzellen.
- Antikörper gegen einen Marker aus der Liste A, B oder C.
- Diagnostikmittel enthaltend mindestens einen, bevorzugt zwei oder mehr Substanzen zur Erkennung der Marker der Liste A, B oder C.
- Arzneimittel enthaltend die Zellpopulation nach einem der Ansprüche 1 bis 5.
- Zellpopulation, dadurch gekennzeichnet, dass mindestens 5% der Zellen neurale Stammzellen sind, die wenigstens einen der in Liste D oder Liste E aufgeführten Marker aufweisen.
- Zellpopulation, dadurch gekennzeichnet, dass mindestens 5% der Zellen neurale Stammzellen sind, die wenigstens zwei, bevorzugt wenigstens 3 der in Liste D oder Liste E aufgeführten Marker aufweisen.
- Zellpopulation, nach mindestens einem der Ansprüche 11 bis 12, dadurch gekennzeichnet, dass die neuralen Stammzellen keinen in Liste A oder Liste C aufgeführten Marker aufweisen.
- Zellpopulation nach mindestens einem der Ansprüche 11-13, dadurch gekennzelchnet, dass mindestens 25% der Zellen neurale Stammzellen sind.
- 15. Zellpopulation nach mindestes einem der Ansprüche 11 bis 14, dadurch gekennzeichnet, dass es sich um eine murine Zellpopulation handelt und/oder die neuralen Stammzellen aus Hirngewebe erhältlich.
- 16. Verfahren zur Isolierung einer Zellpopulation nach mindestens einem der Ansprüche 11 bis 15 mit folgenden Schritten:
 - a) Entnahme einer Probe aus dem Hirn

b) Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

oder

- a) Differenzierung von embryonalen Stammzellen zu neuralen Stammzellen.
- b) Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

oder

- a) Trans-Differenzierung von adulten, nicht neuralen Stammzellen zu neuralen Stammzellen,
- b) Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

oder

- a) De-Differenzierung von adulten, neuralen Vorläuferzellen zu neuralen Stammzellen,
- b) Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker

oder

- a) Differenzierung von immortalisierten Zellen zu neuralen Stammzellen,
- b) Isolieren der neuralen Stammzellen unter Verwendung der angegebenen Marker.
- Antikörper gegen einen Marker aus der Liste D, E, A oder C.
- 18. Diagnostikmittel enthaltend mindestens einen, bevorzugt zwei oder mehr Substanzen zur Erkennung der Marker der Liste D, E, A oder C.
- 19. Arzneimittel enthaltend die Zellpopulation nach einem der Ansprüche 11 bis 15.



Europäisches Patentamt

Europäisches EUROPÄISCHER TEILRECHERCHENBERICHT

Nummer der Anmeldung

der nach Regel 45 des Europäischen Patentübereinkommens für das weitere Verfahren als europäischer Recherchenbericht gilt

EP 03 02 5506

Kategorie	Kennzeichnung des Dokun der maßgebliche	nents mit Angabe, soweit enforderlich n Teile	Betrifft Anspruch	KLASSIFIKATION DER ANMELDUNG (Int.Cl.7)
х	ARSENIJEVIC YVAN ET multipotent neural the cortex of the a EXPERIMENTAL NEUROL Bd. 170, Nr. 1, Jul Seiten 48-62, XP002 ISSN: 0014-4886 * Seite 52, linke Srechte Spalte, Absa	AL: "Isolation of precursors residing in dult human brain". OGY, i 2001 (2001-07), 275728 spalte, letzter Absatz - tz 1 * palte, letzter Absatz * spalte, Absatz 2 -	1-6,10	C12N5/06 G01N33/53
		*		RECHERCHIERTE SACHGEBIETE (Int.CL.7 C12N G01N
Die Reche in einem s der Techn Vollständig Unvollstän Nicht rech	LLSTÄNDIGE RECHEI erohenabteilung ist der Auffassung, da olohen Umfang nicht entspricht bzw. « ik für diese Ansprüche nicht, bzw. nur g recherchierte Patentansprüche: adig recherchierte Patentansprüche: erchierte Patentansprüche: die Beschränkung der Recherche: die Ergänzungsblatt C	ß ein oder mehrere Ansprüche, den Vorschrifte entsprechen, daß sinnvolle Ermittlungen über d teilweise, möglich sind.	en des EPÜ en Stand	
	Recherchenori	Abachlu6datum dei Recherche	Ni -	Proter
X : von t Y : von t ander A : techr	MÜNCHEN TEGORIE DER GENANNTEN DOKU besonderer Bedeutung allem betrachti besonderer Bedeutung in Verbindung ren Veröffentlichung derselben Katego notigscher Hintergrund schriftliche Offenbarung	E: Alberes Patenidoku nach dem Anmekla mit einer D: in der Anmeklung one L: aus anderen Gründ	unde liegende Ti iment, das jedool idatum veröffenti angeführtes Dok den angeführtes i	icht worden ist ument



EUROPÄISCHER TEILRECHERCHENBERICHT

Nummer der Anmeldung EP 03 02 5506

	EINSCHLÄGIGE DOKUMENTE	KLASSIFIKATION DER ANMELDUNG (Int.CI.7)	
Kategorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich der maßgeblichen Teile	Betrifft Anspruch	,
Х	UCHIDA N ET AL: "Direct isolation of human central nervous system stem cells" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, Bd. 97, Nr. 26, 19. Dezember 2000 (2000-12-19), Seiten 14720-14725, XPO02223508 ISSN: 0027-8424 * Zusammenfassung * * Seite 14722, rechte Spalte, letzter Absatz - Seite 14724, rechte Spalte, Absatz 1 * * Abbildungen 1,2 *	11-16,19	
X	KANEKO Y ET AL: "MUSASHI1: AN EVOLUTIONALLY CONSERVED MARKER FOR CNS PROGENITOR CELLS INCLUDING NEURAL STEM CELLS" DEVELOPMENTAL NEUROSCIENCE, S. KARGER, BASEL, CH, Bd. 22, Nr. 1/2, 2000, Seiten 139-153, XP001033925 ISSN: 0378-5866 * Zusammenfassung * * Abbildung 5 *	11-16,19	RECHERCHIERTE (Int.Cl.7
X	EP 1 354 943 A (NAT INST OF ADVANCED IND SCIEN) 22. Oktober 2003 (2003-10-22) "Monoclonal antibodies, hybridomas, cell isolation method, isolated cells and immunological diagnostic method" * Spalte 2, Zeile 42 - Spalte 3, Zeile 11 * * Spalte 13, Zeile 41 - Spalte 14, Zeile 53 *	1-19	



EUROPÄISCHER TEILRECHERCHENBERICHT

Nummer der Anmeldung EP 03 02 5506

	EINSCHLÄGIGE DOKUMENTE	KLASSIFIKATION DER ANMELDUNG (Int.CL7)	
Categorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich der maßgeblichen Teile	Betrifft Anspruch	(
(GIMONA MARIO ET AL: "Beta-Actin Specific Monoclonal Antibody" CELL MOTILITY AND THE CYTOSKELETON, Bd. 27, Nr. 2, 1994, Seiten 108-116, XP009028901 ISSN: 0886-1544 * das ganze Dokument *	8,9,17,	
		·	RECHERCHIERTE SACHGEBIETE (Int.Cl.7)
	·		
	,		



UNVOLLSTÄNDIGE RECHERCHE ERGÄNZUNGSBLATT C

Nummer der Anmeldung EP 03 02 5506

Unvollständig recherchierte Ansprüche: 6, 16

Grund für die Beschränkung der Recherche (nicht patentfähige Erfindung(en)):

Artikel 52 (4) EPÜ – Verfahren zur chirurgischen Behandlung des menschlichen oder tierischen Körpers

Weitere Beschränkung der Recherche

Unvollständig recherchierte Ansprüche: 1-5, 7-15, 17-19

Grund für die Beschränkung der Recherche:

In den Listen A-E, auf die sich in den Patentansprüchen bezogen wird, sind insgesamt etwa 1000 putative Positiv- und Negativmarker neuraler Vorläuferzellen und neuraler Stammzellen aufgelistet. Diese putativen Marker sind teilweise bereits bekannte Proteine, wie z.B. beta-Aktin oder Interleukin 1 alpha, teilweise aber auch undefinierte, als "ESTs" benannte sogenannte Marker oder partielle mRNA-Sequenzen. Aufgrund der grossen Anzahl der putativen Marker und deren tw. mangelhaften Identifikation ist es unmöglich, eine vollständige Recherche zu erstellen.

ANHANG ZUM EUROPÄISCHEN RECHERCHENBERICHT ÜBER DIE EUROPÄISCHE PATENTANMELDUNG NR.

EP 03 02 5506

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten europäischen Recherchenbericht angeführten Patentdokumente angegeben.
Die Angaben über die Familienmitglieder entsprechen dem Stand der Datei des Europäischen Patentamts am Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

07-04-2004

Im Recherchenbericht angeführtes Patentdokument		Datum der Veröffentlichung		Mitglied(er) e Patentfami	der lie	Datum der Veröffentlichung
EP 1354943	A	22-10-2003	EP JP US	1354943 2004002350 2003186335	Α	22-10-2003 08-01-2004 02-10-2003

Für nähere Einzelheiten zu diesem Anhang : siehe Amtsblatt des Europäischen Patentamts, Nr.12/82

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